REPORT ON THE

1990

INDUSTRIAL DIRECT

DISCHARGES

IN ONTARIO

VOLUME II

DATA FOR INDIVIDUAL

PLANT PERFORMANCE

JULY 1992

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REPORT ON THE 1990 INDUSTRIAL DIRECT DISCHARGES IN ONTARIO

Volume II : Data for Individual Plant Performance

Appendices

Report Prepared By:

Water Resources Branch
in co-operation with
Regional Operations Division
Ontario Ministry of the Environment

JULY 1992

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NOTES ON APPENDIX A

Appendix A is composed of the Wastewater Discharge Summary Sheets which contain specific information on each discharger, and their data tables.

Wastewater Discharge Summary Sheets

1) The name of the discharger and the municipality in which the plant is located.

2) The 10 digit code used to identify the company in the Ministry of the Environment's Industrial Monitoring Information System (IMIS) and the Sample Information System (SIS) data bases.

3) The Ministry of the Environment Region and the District Office that deals with the discharger.

4) Its MISA sector name.

5) The receiving water body.

6) The Standard Industry Classification code (SIC) and a brief description of the industrial activity.

7) Effluent characteristics as related to the industrial activity.

8) Effluent treatment equipment and systems.

9) The discharge type, or nature of the flow--continuous or intermittent; the means of discharge--surface, open pipe, submerged diffuser, or drainage ditch, and the number of discharge points.

10) What the company limits, which may be a guideline or a requirement, are set by.

11) A compliance summary statement under Exceedances for each discharger based on the number of individual limits exceeded out of the total number of parameters monitored with limits.

12) Any remedial actions that may have been taken to correct problems that have caused the discharge to exceed the allowable limits.

13) Any additional comments on the effluent which may help to explain the nature of the exceedance, in particular where the actual pollutant value was exceeded. Toxicity test information is also presented for those companies that have performed toxicity analysis.

Data Tables

1) The individual discharge points or pipes for each source are shown, if there is more than one discharge pipe.

2) Compliance is assessed as in previous Reports. For some sources, compliance is judged on one or two key discharges, although more discharge pipes are reported. In some cases, the legal limit is based on net loadings and compliance is assessed using net loadings.

3) The average monthly effluent flow discharged by the source.

4) The average monthly pollutant load discharged by the source, and limits which may be a guideline, a legal number (set by Control Order, Requirement and Direction, Certificate of Approval or Federal Regulation). Some discharges are seasonal and, thus, twelve monthly results are not available. Some pollutants are measured on a quarterly or semi-annual basis.

5) Data on pollutants which are monitored but which there are no limits.

The data tables in Appendix A have been printed from the Ministry's Industrial Monitoring Information System (IMIS) and from the Sample Information System (SIS). Multiple data tables may be reported for some sources. This is because some industries submitted data as required by control orders or certificates of approval, and submitted data as required by the MISA Monitoring program. The control orders, or certificates of approval (C. of A.) may have specified sampling frequencies greater than the MISA monitoring program, and/or parameters not required by MISA.

The order of data table presentation in this report is:

1. data table used for compliance assessment

2. data table obtained from MISA monitoring regulations and presented here for comparison purposes.

Where there are differences in data values between the two tables they can be attributed to the difference in number of samples reported and/or to the method of calculating the monthly average loadings between the MISA program and the control order or C. of A.

The following example shows the format used for chemical parameters reported on the data tables:

PHOSPHOR UNF. TOT
KG/DAY (PPUT)

PHOSPHOR UNF. TOT is 'phosphorus unfiltered total'. Some of the chemical parameter names are abbreviated due to lack of space in the name field in the IMIS/SIS databases.

KG/DAY in this example is kilograms per day and represents a loading value. Other units used are M3/DAY (cubic metres day) for flow; MG/L (milligrams per litre), UG/L (micrograms per litre) and NG/L (nanograms per litre) for concentration.

(PPUT) is the Ministry Laboratory parameter code for 'phosphorus unfiltered total'.

ACTUAL is the precalculated loading value provided by industry to the Ministry of the Environment.

CALC is the loading value calculated by the Ministry of the Environment from MISA sample results provided by industry through the MISA monitoring program.

The following list shows parameter names which may be described by alternate names in this report. Column A shows those chemical parameter names as they appear in Appendix A while Column B shows the same parameter as it appears elsewhere in the report.

Column A	Column B
BOD5	BIOCHEMICAL OXYGEN DEMAND
CHEM. OX. DEMAND	CHEMICAL OXYGEN DEMAND
K'DAHL N	KJELDAHL NITROGEN
NH3-N	AMMONIA-NITROGEN; AMMONIA
NO2+NO3N	NITRITES AND NITRATES
NO3-N	NITRATES
RESIDUE FILTERED	DISSOLVED SOLIDS
RESIDUE PARTIC.	TOTAL SUSPENDED SOLIDS; SUSPENDED SOLIDS; TSS; SS
RESIDUE TOTAL	TOTAL SOLIDS
SOLVENT EXTRACT.	OIL AND GREASE
TEMP RISE	TEMPERATURE RISE

Further information on parameter codes used in the discharge data tables is available from:

Laboratory Services Branch
Laboratory Computer Systems - Quality Assurance Section
125 Resources Road, Rexdale, Ontario
M9W 5L1

Phone: (416) 235-5840

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Abitibi-Price Inc. IMISNO.:0000860403
& PLANT LOCATION: Iroquois Falls Division, Iroquois Falls

MOE REGION: Northeast DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper SIC CODE: 031, 271

RECEIVING WATERBODY: DIRECT: Abitibi River
INDIRECT: Moose River to James Bay

DESCRIPTION OF ACTIVITY: Logs and wood chips (softwoods - black spruce, jack pine, balsam fir) are converted into newsprint by two different processes - stone ground wood and sulphite. The ground wood is brightened by hydrosulphite.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, paper) and a variety of organic compounds in the spent sulphite cooking liquor.

EFFLUENT TREATMENT: In-mill screens remove some bark and ground wood fibre prior to the clarifiers. Two clarifiers in parallel are used to remove solids.

DISCHARGE TYPE: Continuous outfall.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (August 1, 1985) In 1985 a control order was issued to the company setting limits of 9.0 tonnes/day and 69.0 tonnes/day for suspended solids (RSP) and Biochemical Oxygen Demand (BOD5) respectively, averaged over 30 consecutive working days, with a daily maximum limit of 18.2 tonnes for suspended solids.

EXCEEDANCES: Suspended Solids (RSP) (1): The daily maximum limit was exceeded on June 25, 1990 - 24.7 tonnes.

REMEDIAL ACTIONS: The company started up a new woodroom in early 1991 which is expected to lower total loading of suspended solids.

COMMENTS: An audit sample conducted by MOE indicated this effluent to had been acutely lethal with a 96 hour LC50 of 5.8 %.

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the total outfall effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure ranged from 6.3 % - 16.7 % effluent.

12/16/91

000086-04-0(3) ABITIBI-PRICE INC., IROQUOIS FALLS DIV. IROQUOIS FALLS REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 NET DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	61691	60930	56770	57019	61734	67011	69921	68977	70420	63118	62556	65447	63800	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	55200	58700	55800	53300	48800	54800	49400	42900	39600	39200	39800	40400	48158	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	6900	6900	6200	6800	6700	6700	6600	7000	5200	5900	7000	6100	6500	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 95.8 % IN 1990.

000086-04-0(3) ABITIBI-PRICE INC., IROQUOIS FALLS DIV. IROQUOIS FALLS REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	62187	60930	56932	59897	64782	69768	69777	70007	70037	65149	65114	68265	65237	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	58898	58863	49501	56887	53513	58221	46542	48162	36855	40048	40577	40521	49049	
KG /DAY (BOD5)	REQUIREMENT														
RESIDUE PARTIC.	CALC	8118	7271	6188	8104	8341	7961	6720	7470	6050	7891	9374	8599	7674	
KG /DAY (RSP)	REQUIREMENT														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Abitibi-Price Inc. Fort William Division, Thunder Bay

IMISNO.:0000860205

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Newsprint is made mainly from softwoods (black spruce, balsam fir) logs and chips by using the stone ground wood and Sulphonated Chemical Mechanical processes. The ground wood is brightened by hydrosulphite.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre etc) and organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clarifier and a lagoon handle the woodroom effluent. Two settling lagoons handle the remainder of the mill effluent.

DISCHARGE TYPE: Two continuous surface discharges.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings on the total mill effluent discharged (BOD - 42.5 kg per metric ton of product produced or alternatively 14.5 metric tons per day averaged over any 30 consecutive working days and Suspended Solids of 50 mg per litre or alternatively 2.5 metric tons per day averaged over any 30 consecutive working days)

MOE OR FEDERAL GUIDELINES: MOE guideline for phosphorus.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Company is investigating ways to decrease toxicity.

COMMENTS: Two trout bioassays conducted in 1990, indicated the Bark Lagoon effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 6.3 and 3.5 %.

One trout bioassay conducted in 1990, indicated the Main Sewer 1 effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 12.6 %

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Abitibi-Price Inc. ...continued
& PLANT LOCATION: Fort William Division, Thunder Bay

IMIS NO.: 0000860205

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Main Sewer # 1 effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure ranged from 5.6 - 24.5 % effluent.

An audit sample conducted by MOE indicated this effluent to have been acutely lethal with a 96 hour LC50 of 12.1 %.
The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Bark Lagoon # 2 effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure ranged from 1.8 -14.1 % effluent.

An audit sample conducted by MOE indicated this effluent to have been acutely lethal with a 96 hour LC50 of 3.5 %.

07/23/91

000086-02-0(5) ABITIBI-PRICE INC. FORT WILLIAM DIVISION THUNDER BAY REPORT DATE: 18 NOV 91
CONTROL POINT: 0100, SEWER LAGOON DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	25855	25993	26242	25018	25599	26763	28891	29477	27452	23624	29816	29960	27058	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	12860	13760	14390	11910	13470	11200	11990	13040	7890	8130	12000	12350	11916	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	1050	1140	1110	720	790	900	1060	1620	1010	870	840	1020	1011	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CONTROL ORDER REQUIREMENT.
FOR COMPLIANCE WITH THE CONTROL ORDER SEE THE WASTE WATER DISCHARGE SUMMARY PAGE.

000086-02-0(5) ABITIBI-PRICE INC. FORT WILLIAM DIVISION THUNDER BAY REPORT DATE: 10 JAN 92
S U M M A R Y FOR EMIS. TYPE: 30 PROCESS EFFLUENT DISCHARGED INTO: 02/001/ LAKE SUPERIOR
INCLUDES CONTROL POINTS: 0100 0200
1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	25679	25994	26074	24584	25599	26487	28922	29478	28559	23617	29986	30583	27130	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	12440	15197	15196	14763	15404	11996	12829	14677	8065	8745	13468	12629	12951	
KG /DAY (BOD5)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC	19.1	7.24	8.66	13.1	10.5	8.08	22.9	19.7		19	16.7	28.3	15.7	
KG /DAY (PPUT)	GUIDELINE	25.5	27.4	25.4	24.4	25.4	20.2	31.7	28.6		25.7	28.1	32.3	26.8	0
RESIDUE PARTIC.	CALC	1143	1228	1247	1133	1232	1181	1272	1774	1222	722	1088	1326	1214	
KG /DAY (RSP)	REQUIREMENT														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

COMBINED EFFLUENT FROM CONTROL POINTS 0100 AND 0200 (MISA), PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

000086-02-0(5) ABITIBI-PRICE INC. FORT WILLIAM DIVISION THUNDER BAY REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, SEWER LAGOON DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE	22007	21522	21973	21500	21176	22080	25124	24686	24461	20434	24762	26610	23028	
BOD 5 DAY KG /DAY (BOD5)	CALC REQUIREMENT	9810	11500	11400	12000	12200	9190	10100	10100	4930	6820	10700	9710	9872	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE	9.77	0.614	4.84	8.74	6.79	8.08	9.33	8.19		11.9	12.1	15.3	8.7	
RESIDUE PARTIC. KG /DAY (RSP)	CALC REQUIREMENT	688	616	655	724	763	697	733	1130	660	385	610	796	705	

****

000086-02-0(5) ABITIBI-PRICE INC. FORT WILLIAM DIVISION THUNDER BAY REPORT DATE: 10 JAN 92
CONTROL POINT: 0200, BARK LAGOON #2 DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE	3672	4472	4101	3084	4423	4407	3798	4792	4098	3183	5224	3973	4102	
BOD 5 DAY KG /DAY (BOD5)	CALC REQUIREMENT	2630	3697	3796	2763	3204	2806	2729	4577	3135	1925	2768	2919	3079	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE	9.34	6.63	3.82	4.38	3.66		13.6	11.5		7.03	4.55	13	7.05	
RESIDUE PARTIC. KG /DAY (RSP)	CALC REQUIREMENT	455	612	592	409	469	484	539	644	562	337	478	530	509	

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

COMBINED EFFLUENT FROM CONTROL POINTS 0100 AND 0200 (MISA), PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Abitibi-Price Inc. Provincial Papers Division, Thunder Bay

IMISNO.:0000860106

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine papers - coated and uncoated - are made from ground wood pulp using softwoods (black spruce, white spruce and balsam fir) and purchased pulp. Hydrogen peroxide is used to whiten pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and many organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clays are partially recovered by an in-mill system. High solids streams are treated by a clarifier. All mill effluent passes into a settling lagoon.

DISCHARGE TYPE: Continuous surface.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 7.3 metric tonnes per day or alternately 22 kg/metric tonne of product and total suspended solids - 2.5 metric tonnes per day or 50 milligrams per litre)

MOE OR FEDERAL GUIDELINES: MOE guideline for phosphorus.

EXCEEDANCES: Suspended Solids (RSP) (1)

REMEDIAL ACTIONS: A process change temporarily affected the treatment system; process restabilized on its own within two weeks.

COMMENTS: Five trout bioassays conducted in 1990, indicated the final effluent to have been non-acutely lethal to test fish.

The data for four of six trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Lagoon Outfall effluent to have been not acutely lethal to test fish. The remaining two samples were determined to have 96 hour LC50s > 100 % effluent.

07/23/91

000086-01-0(6) ABITIBI-PRICE, PROVINCIAL PAPERS THUNDER BAY REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, LAGOON DISCHARGE 1990 DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	51403	53227	49667	45094	42043	42229	47566	49881	50444	47429	47656	49790	48036	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	3874	4223	3782	3859	4364	4437	4430	5262	5181	3416	4904	4390	4344	
KG /DAY (BOD5)	REQUIREMENT	7300	7300	7300	7300	7300	7300	7300	7300	7300	7300	7300	7300	7300	0
RESIDUE PARTIC.	ACTUAL	2770	1658	1242	1092	1425	1490	1927	1799	1958	1656	1367	1000	1615	
KG /DAY (RSP)	REQUIREMENT	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	1

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CONTROL ORDER REQUIREMENT.
FOR COMPLIANCE WITH CONTROL ORDER SEE THE WASTE WATER DISCHARGE SUMMARY PAGE.

000086-01-0(6) ABITIBI-PRICE, PROVINCIAL PAPERS THUNDER BAY REPORT DATE: 3 MAR 92

CONTROL POINT: 0100, LAGOON DISCHARGE 1990 MISA DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	51404	53243	49687	45094	41933	42229	46403	49848	50194	47209	47640	49792	47890	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	3890	4310	3800	3640	4300	4690	4880	5140	3770	3420	4780	4230	4237	
KG /DAY (BOD5)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC	2.04	4.24	5.06	3.28	3.34	3.57	3.72	2.27		5.86	2.96	4.66	3.73	
KG /DAY (PPUT)	GUIDELINE	44.3	55.1	49.2	47.5	40.2	41.6	47.1	49.3		48.0	48.5	49.6	47.3	0
RESIDUE PARTIC.	CALC	2760	1660	1240	1090	1430	1500	1840	1800	2150	1660	1370	997	1625	
KG /DAY (RSP)	REQUIREMENT														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Abitibi-Price Inc. Thunder Bay Division, Thunder Bay

IMIS NO.: 0000860007

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (black spruce, balsam fir, jack pine) logs are made into newsprint by the stone ground wood and sulphite pulping processes. Hydrosulphite is used to brighten the pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and many organics (mainly the spent sulphite cooking liquor).

EFFLUENT TREATMENT: A woodroom clarifier and two parallel lagoons (2.75 acres each) remove suspended solids.

DISCHARGE TYPE: Continuous surface.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 24.5 metric tonnes/day or 57 kg per metric tonne of product and TSS - 2.0 metric tonnes/day or 50 milligrams per litre)

MOE OR FEDERAL GUIDELINES: MOE guidelines for phosphorus.

EXCEEDANCES: A total of 10 daily Control Order TSS exceedances were reported for the year, based on exceeding both daily limits on a 30 day rolling average. A total of 230 daily control order BOD5 exceedances were reported for the year based on exceeding both daily limits on a 30 day rolling average.

REMEDIAL ACTIONS: The company has installed floating booms in the lagoon to help reduce suspended solids. Polymer trials have been run with little success and installation of a larger refiner is intended to address BOD5 exceedances. Company has supplemented a small percentage of sulphite pulp with purchased kraft. Both TSS and BOD5 exceedances are presently under investigation by IEB. Company suspended operations in April, 1991.

COMMENTS: The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Primary Lagoon Outfall # 2 effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure ranged from 14.9 - 52.8 % effluent.

An audit sample conducted by MOE indicated this effluent to had been acutely lethal with a 96 hour LC50 of 33.5 %.
03/08/91

000086-00-0(7) ABITIBI-PRICE INC., THUNDER BAY DIVISION THUNDER BAY REPORT DATE: 13 NOV 91
CONTROL POINT: 0100, PRIMARY LAGOON DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	46310	45570	44541	41326	44713	47412	49921	51208	50263	47411	48239	46566	46957	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	27730	23000	22150	22680	28490	29760	27110	28970	27090	24660	29670	27080	26533	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	2260	2110	2020	1440	1590	1640	1580	1880	1630	1240	1710	1690	1733	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CONTROL ORDER REQUIREMENT.
FOR COMPLIANCE WITH CONTROL ORDER SEE THE WASTE WATER DISCHARGE SUMMARY PAGE.

000086-00-0(7) ABITIBI-PRICE INC., THUNDER BAY DIVISION THUNDER BAY REPORT DATE: 3 MAR 92
CONTROL POINT: 0100, PRIMARY LAGOON DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	46309	45570	44541	41326	44711	47411	49922	51206	50264	47411	48239	46566	46956	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	29100	25400	22900	26100	30800	30300	26600	28700	29400	24800	34100	31700	28325	
KG /DAY (BOD5)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC	8.59	9.42	6.43	8.59	11.5	10.2	7.16	15.1	15.3	13.9	11.8	15	11.1	
KG /DAY (PPUT)	GUIDELINE	44.8	49.6	41.2	46.2	42.6	44.2	50.0	54.0	47.9	51.6	32.7	46.9	46.0	0
RESIDUE PARTIC.	CALC	2460	2200	2100	1450	1690	1740	1670	1980	1750	1480	1890	1820	1853	
KG /DAY (RSP)	REQUIREMENT														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Algoma Steel
& PLANT LOCATION: Sault Ste. Marie

IMIS NO.: 0000040006

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291, 292, 298

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT: East Davignon Creek

DESCRIPTION OF ACTIVITY: Produces iron and steel from coal (coke), limestone, iron concentrates/pellets and scrap by using coke ovens, blast furnaces, cupola, and rolling mills.

EFFLUENT CHARACTERISTICS: Contains suspended solids (coal, coke, iron) and coal tar compounds (ammonia, cyanide, oil and grease, phenols)

EFFLUENT TREATMENT: Clarifiers, settling basins, brill skimmers, ammonia recovery stills, biological and physical-chemical treatment processes (filtration plant).

DISCHARGE TYPE: Continuous; 6 outfalls; terminal basin discharges through a submerged diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (September 23, 1988) An Amending Control Order was issued on September 23, 1988 establishing the following abatement schedule and limits:

Terminal Basin (control point 0700) - Feb. 15, 1989; Ammonia and cyanide limited in combination based on toxicity considerations

- Solvent Extractables 1589 kg/day; susp. solids 7355 kg/day are in effect.
- Jun. 30, 1989 Phenolics 22.7 kg/day
- Mar. 31, 1990 Solvent Extractables 1023 kg/day; susp. solids 5108 kg/day

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharge in Ontario; on control points 0100, 0200, 0300, 0400, 0600

EXCEEDANCES: Suspended Solids (RSP) (1), Solvent Extractables (2): at Terminal Basin.

REMEDIAL ACTIONS: An amending Control Order was issued on September 23, 1988. A Certificate of Approval for the construction of a dual media filtration and biological treatment plant was issued on January 23, 1989. It is expected that this will bring the effluent into compliance for suspended solids, solvent extractables, phenols, cyanide and ammonia. The construction was completed in 1990. The effluent is now in compliance for suspended solids and solvent extractables.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Algoma Steel ...continued
& PLANT LOCATION: Sault Ste. Marie

IMISNO.:0000040006

COMMENTS: Sampling frequencies for the following parameters are weekly: dissolved iron (FEFT), ammonia-nitrogen (NH3-N), phenols (PHNOL). Sampling frequencies for the following parameters are daily: cyanide (CCNFUR), pH, suspended solids (RSP), dissolved zinc (ZNFT).

The data for seven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Bar and Strip Lagoon effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure ranged from 14.1 - 80.6 % effluent %.

An audit sample conducted by MOE was also acutely lethal with a 96 hour LC50 of 11.5 % effluent.

Two samples collected from the 60 inch sewer were determined not acutely lethal. An audit sample conducted by MOE was also non-lethal.

Two samples collected from the 30 inch sewer were determined not acutely lethal.

Six of the seven samples collected from the Tube Mill effluent were determined not acutely lethal. The remaining sample 96 LC50 was determined to be > 100 % effluent. An audit sample conducted by MOE was also non-lethal.

Two samples collected from the Cold Mill 24 inch effluent were determined not acutely lethal.

Seven of the eight samples collected from the Terminal Settling Basin were determined not acutely lethal. The remaining sample 96 LC50 was determined to be > 100 % effluent. An audit sample conducted by MOE was also non-lethal.

12/16/91

000004-00-0(6) ALGOMA STEEL — SAULT STE MARIE — REPORT DATE: 7 JAN 92

CONTROL POINT: 0700, TERMINAL BASIN DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	329586	326858	345042	322312	331404	353225	363226	60000	51582	33311	41706	237396	232971	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.7	7.8	7.8	7.6	7.5	7.5	6.5	6.4	6.7	7.2	7.7	7.33	
(PH)	GUIDELINE														0
CYANIDE FREE	ACTUAL	16.5	6.5	3.5	6.4	9.9	10.6	7.3	1.56	2.42	1.77	2.21	2.32	5.92	
KG /DAY (CCNFUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
IRON UNF.TOT.	ACTUAL	165	163					43.6					28.4	100	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	1191	1438	552	1386	2187	5681	2070	469	1367	869	993	2207	1701	
KG/DAY (NNHTUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
PHENOLS UNF-REAC	ACTUAL	0.013	0.01	0.004	0.006	0.02	0.002	0.004	0.23	0.27	0.18	0.82	1.3	0.260	
KG /DAY (PHNOL)	GUIDELINE	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	0
RESIDUE PARTIC.	ACTUAL	7910	6635	6590	838	663	530	654	174	166	87.3	112	427	2066	
KG /DAY (RSP)	REQUIREMENT	7355	7355	7355	5180	5180	5180	5180	5180	5180	5180	5180	5180	5724	1
SOLVENT EXTRACT.	ACTUAL	2175	1569	1656	355	295	318	363	83.5	71.2	60.9	47.3	119	593	
KG /DAY (SOLEXT)	REQUIREMENT	1589	1589	1589	1023	1023	1023	1023	1023	1023	1023	1023	1023	1165	2
SULPHIDE UNF.REAC	ACTUAL	16.5	16.3	48.3	12.9	6.6	7.1	7.3	1.8	1.5	0.67	8.3	0	10.6	
KG /DAY (SSIDUR)	GUIDELINE														

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1990.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 06 MAR 92

CONTROL POINT: 0700, TERMINAL BASIN DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	329582	326838	345016	322467	331398	353114	372262	63000	51953	33341	42578	250020	235131	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.85	7.71	7.82	7.79	7.57	7.47	7.52	6.47	6.45	6.66	7.09	7.78	7.35	
(PH)	GUIDELINE														
IRON UNF.TOT.	CALC	148	147	183	185	59.8	45.5	39.9	8.99	7.23	13.9	9.99	29	73.1	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	11.7	9.64	4.27	6.13	2.08	2.07	3.63	0.361	0.32	0.169	0.201	1.01	3.47	
KG /DAY (PHNOL)	REQUIREMENT														
RESIDUE PARTIC.	CALC	8054	6672	6690	851	681	535	660	216	185	87.5	126	422	2098	
KG /DAY (RSP)	REQUIREMENT														
SOLVENT EXTRACT.	CALC	2208	1570	1665	351	296	299	315	134	81.3	61.1	42.2	267	607	
KG /DAY (SOLEXT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 7 JAN 92
CONTROL POINT: 0500, COLD MILL 24" SEWER DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4546	4546	4546	4546	3637	3410	4091					17	3667	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.8	7.8	7.8	7.9	7.9	8	8					8	7.9	
(PH)	GUIDELINE														0
IRON UNF.TOT.	ACTUAL	0.14	0.14	0.22	0.43	0.19	0.17	0.2						0.213	
KG /DAY (FEUT)	GUIDELINE	4.55	4.55	4.55	4.55	4.55	4.55	4.55						4.55	0
RESIDUE PARTIC.	ACTUAL	4.3	4.1	6.8	13.2	9.1	7.5	10.2					0.006	6.90	
KG /DAY (RSP)	REQUIREMENT	68.2	68.2	68.2	68.2	54.6	51.1	61.4					0.255	55.0	0
SOLVENT EXTRACT.	ACTUAL	1.45	0.45	5.12	3.6	4.7	2.7	4.1						3.16	
KG /DAY (SOLEXT)	REQUIREMENT	68.2	68.2	68.2	68.2	54.6	51.1	61.4						62.8	0

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 06 MAR 92
CONTROL POINT: 0500, COLD MILL 24" SEWER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4592	4584	4458	4548	3652	3411	4063						4187	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.84	7.78	7.82	7.87	7.91	8.04	8.03						7.9	
(PH)	GUIDELINE														
IRON UNF.TOT.	CALC	0.138	0.124	0.215	0.429	0.189	0.165	0.197						0.208	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	4.82	4.34	6.7	13.1	9.04	7.59	10						7.94	
KG /DAY (RSP)	REQUIREMENT														
SOLVENT EXTRACT.	CALC	1.46	1.49	5.12	3.4	4.23	2.67	1.27						2.81	
KG /DAY (SOLEXT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

REDUCED DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 06 MAR 92

CONTROL POINT: 0100, BAR & STRIP LAGOON DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	140295	158488	153969	174289	170686	144767	157698				43052	150634	143764	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.17	8.58	8.82	8.33	8.72	8.51	8.88				8.12	9.17	8.59	
(PH)	GUIDELINE														0
IRON UNF.TOT.	CALC	69.8	56.8	72.8	66.3	113	62.9	46.5				6.46	44.4	59.9	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	2.71	2.12	0.91	3.31	1.78	0.608	2.37				0.086	2.45	1.82	
KG /DAY (PHNOL)	GUIDELINE	2.77	3.17	3.07	3.49	3.44	2.89	3.16				0.861	3.01	2.87	0
RESIDUE PARTIC.	CALC	1398	1353	1866	1627	1599	981	1153				276	844	1233	
KG /DAY (RSP)	GUIDELINE	2086	2377	2302	2614	2581	2168	2379				646	2260	2157	0
SOLVENT EXTRACT.	CALC	108	101	99.3	130	134	287	127				43.1	188	135	
KG /DAY (SOLEXT)	GUIDELINE	2080	2378	2302	2614	2580	2168	2378				646	646	1977	0
ZINC UNF.TOT.	CALC	5.17	9.96	35.7	53.5	84.9	84.1	51.2				0.732	122	49.7	
KG /DAY (ZNUT)	GUIDELINE	140	158	153	174	172	145	159				43	151	144	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 45, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

NO DISCHARGE DURING AUGUST TO OCTOBER 1990 DUE TO STRIKE.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

000004-00-0(6) ALGOMA STEEL — SAULT STE MARIE — REPORT DATE: 06 MAR 92

CONTROL POINT: 0200, 60" SEWER DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	78237	65705	81199	81199	80809	80044	86568						79109	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.08	8.08	8.06	8.22	8.25	8.27	8.35						8.19	
(PH)	GUIDELINE														0
IRON UNF.TOT.	CALC	3.77	1.58	5.89	12.7	10.4	21.4	16.5						10.3	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.52	0.568	0.162	0.812	0.174	0.225	0.605						0.438	
KG /DAY (PHNOL)	GUIDELINE	1.73	1.62	1.62	1.62	1.74	1.5	1.73						1.65	0
RESIDUE PARTIC.	CALC	201	191	251	698	655	517	538						436	
KG /DAY (RSP)	GUIDELINE	1170	926	1218	1218	1209	1205	1299						1178	0
SOLVENT EXTRACT.	CALC	156	81.2	179	16.2	86.8	15	17.3						78.8	
KG /DAY (SOLEXT)	GUIDELINE	1301	1218	1218	1218	1302	1122	1297						1239	0
ZINC UNF.TOT.	CALC	0.434	0.731		1.22	0.521	1.8	1.04						0.958	
KG /DAY (ZNUT)	GUIDELINE	86.7	81.2		81.2	86.8	74.8	86.5						82.9	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

NO DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

000004-00-0(6) ALGOMA STEEL — SAULT STE MARIE — REPORT DATE: 06 MAR 92

CONTROL POINT: 0300, 30" SEWER DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4677	4155	4961	4341	4316	3516	4200						4309	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.03	7.94	7.87	7.89	8.12	8.14	8.11						8.01	
(PH)	GUIDELINE														0
IRON UNF.TOT.	CALC	0.668	0.919	1.44	10.7	1.26	1.58	1.03						2.51	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.079	0.02	0.027	0.17	0.033	0.018	0.038						0.055	
KG /DAY (PHNOL)	GUIDELINE	0.0928	0.1007	0.0914	0.0869	0.0836	0.0703	0.084						0.0871	1
RESIDUE PARTIC.	CALC	13.6	10.9	269	133	33.2	80	46.2						83.7	
KG /DAY (RSP)	GUIDELINE	70.2	61.4	74.5	64.9	64.9	52.9	63						64.5	3
SOLVENT EXTRACT.	CALC	4.64	5.03	4.57	4.35	4.18	0.703	0.84						3.47	
KG /DAY (SOLEXT)	GUIDELINE	69.6	75.5	68.6	65.2	62.7	52.7	63						65.3	0
ZINC UNF.TOT.	CALC	0.023	0.035		0.03	0.096	0.116	0.076						0.0627	
KG /DAY (ZNUT)	GUIDELINE	4.64	5.03		4.35	4.18	3.52	4.2						4.3	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 88.2 % IN 1990.

NO DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 06 MAR 92

CONTROL POINT: 0400, #1 TUBE MILL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1802	2426	2169	1427	473	2525	707				625	359	1390	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.13	7.89	7.93	7.99	7.99	7.91	8.02				10	9.52	8.38	
(PH)	GUIDELINE														2
IRON UNF.TOT.	CALC	1.27	2.18	0.821	0.168	0.039	1.45	0.103				0.157	0.079	0.696	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.017	0.005	0.003	0.005	0.001	0.007	0.001						0.00557	
KG /DAY (PHNOL)	GUIDELINE	0.0576	0.0461	0.0279	0.0261	0.00272	0.0747	0.0021						0.0339	0
RESIDUE PARTIC.	CALC	19.4	23	15.3	7.47	4.15	40.5	5.46				2.75	0.407	13.2	
KG /DAY (RSP)	GUIDELINE	27.9	36.1	32.6	21.4	7.5	37.9	10.6				9.38	5.38	21.0	1
SOLVENT EXTRACT.	CALC	3.37	4.85	3.44	1.19	0.471	4.24	0.71				0.625	0.339	2.14	
KG /DAY (SOLEXT)	GUIDELINE	28	36.1	32.5	21.4	7.5	37.9	10.6				9.38	5.09	20.9	0
ZINC UNF.TOT.	CALC	0.018	0.018	0.034	0.019	0.016	0.146	0.021				0.036	0.015	0.0359	
KG /DAY (ZNUT)	GUIDELINE	1.8	2.28	2.24	1.46	0.502	2.59	0.80				0.625	0.359	1.41	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 43, FOR A TOTAL COMPLIANCE RECORD OF 93 % IN 1990.

NO DISCHARGE DURING AUGUST TO OCTOBER 1990 DUE TO STRIKE.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 06 MAR 92

CONTROL POINT: 0600, COLD MILL BASIN DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL			187		207	167							187	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL			7.8		7.9	7.66							7.79	
(PH)	GUIDELINE														0
IRON UNF.TOT.	CALC			0.023		0.04	0.02							0.0277	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC			0		0.001	0.001							0.000667	
KG /DAY (PHNOL)	GUIDELINE			0.00374		0.00414	0.00334							0.00374	0
RESIDUE PARTIC.	CALC			0.438		1.62	0.805							0.954	
KG /DAY (RSP)	GUIDELINE			2.80		3.10	2.51							2.80	0
SOLVENT EXTRACT.	CALC			0.187		0.236	0.184							0.202	
KG /DAY (SOLEXT)	GUIDELINE			2.80		3.10	2.51							2.80	0
ZINC UNF.TOT.	CALC			0.003		0.005	0.004							0.004	
KG /DAY (ZNUT)	GUIDELINE			0.187		0.207	0.167							0.187	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 15, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

NO DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

000004-00-0(6) ALGOMA STEEL — SAULT STE MARIE — REPORT DATE: 09 JAN 92

S U M M A R Y

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0500 0600 0700 — DISCHARGED INTO: 02/002/ ST. MARY'S RIVER

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	559185	562196	591959	588271	591541	587544	625498	63000	51953	33341	86255	401013	395146	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.02	8	8.02	8.02	8.07	8	8.15	6.47	6.45	6.66	8.4	8.82	7.76	
(PH)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	224	209	264	275	185	133	104	8.99	7.23	13.9	16.6	73.5	126	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	15	12.4	5.37	10.4	4.07	2.93	6.64	0.361	0.32	0.169	0.287	3.46	5.12	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	9691	8254	9098	3330	2983	2162	2413	216	185	87.5	405	1266	3341	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	2481	1764	1957	506	526	609	462	134	81.3	61.1	85.9	455	760	
KG /DAY (SOLEXT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	5.65	10.7	35.7	54.8	85.5	86.2	52.3				0.768	122	50.4	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

THE "TOTAL COMPLIANCE" FIGURE REPRESENTS BOTH CONTROL ORDER REQUIREMENTS AND GUIDELINE OBJECTIVES FOR THIS PLANT.

REDUCED DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: American Barrick Resources Corp. McDermott Property, Kirkland Lake

IMIS NO.: 0108920000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Magusi River
INDIRECT: James Bay

DESCRIPTION OF ACTIVITY: 1360 - 1500 tonne/day gold mine/mill complex. Gold is removed from the ore slurry by the carbon in pulp process and refined by using cyanide.

EFFLUENT CHARACTERISTICS: Suspended solids, arsenic, copper, nickel, zinc, lead, ammonia, cyanide

EFFLUENT TREATMENT: Twin tailings ponds are controlled with extended effluent storage and natural degradation.

DISCHARGE TYPE: Seasonal - to occur in the months between March 1 and July 1.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): June 7, 1989: The present C. of A sets the effluent concentrations for various parameters including cyanide (2 mg/L), metals, excluding calcium, magnesium potassium and sodium (1 mg/L), arsenic (0.5 mg/L), copper (0.3 mg/L), nickel (0.2 mg/L), zinc (0.1 mg/L), lead (0.1 mg/L), cadmium (0.001 mg/L), mercury (0.001 mg/L and suspended solids (15 mg/L).

EXCEEDANCES: Iron (2), Mercury (1)

REMEDIAL ACTIONS: Prior to discharge, sampling of the settling pond indicated contents were within limits for discharge. Exceedance of mercury is attributed to sampling error. Exceedance of iron is attributed to sediment increase due to turbulence on discharge.

COMMENTS: An audit sample of the final discharge effluent, when tested by the MOE, was determined as non-lethal.

12/16/91

010892-00-0(0) AMERICAN BARRICK RESOURCES CORP., MCDERM KIRKLAND LAKE REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL			0										0	
MG/L AS AS	REQUIREMENT			0.5										0.5	0
CYANIDE AVAIL	ACTUAL				0.01									0.01	
MG/L AS HCN	REQUIREMENT				1									1	0
CYANIDE FREE	ACTUAL			0	0.003	0.002								0.004	
MG/L AS HCN	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL			0.193	0.09	0.064								0.116	
MG/L AS CU	REQUIREMENT			0.3	0.3	0.3								0.3	0
IRON UNF.TOT.	ACTUAL			1.1	1.8	0.98								1.29	
MG/L AS FE	REQUIREMENT			1	1	1								1	2
MERCURY UNF.TOT.	ACTUAL			1.7										1.7	
UG/L AS HG	REQUIREMENT			1										1	1
MAGNESIM UNF.TOT.	ACTUAL			0	0									0	
MG/L AS MG	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL			0.006	0.005	0.006								0.006	
MG/L AS NI	REQUIREMENT			0.2	0.2	0.2								0.2	0
NH3-N FIL.REAC	ACTUAL			4.52	2.9	1.8								3.07	
MG/L (NNH3FR)	REQUIREMENT			10	10	10								10	0
NITRITE	ACTUAL			2.2	0.94	0.32								1.15	
MG/L AS N (NNO2UR)	GUIDELINE														
LEAD UNF.TOT.	ACTUAL			0.01	0.029	0.014								0.018	
MG/L AS PB	REQUIREMENT			0.1	0.1	0.1								0.1	0
PH	ACTUAL			7.2	7	7.2								7.13	
(PH)	REQUIREMENT														0
PHOSPHORUS	ACTUAL			0.15	0.23	0.2								0.193	
MG/L AS P (PPO4UT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL			4	2	4								3.33	
MG/L (RSP)	REQUIREMENT			15	15	15								15	0
RESIDUE TOTAL	ACTUAL			220	400	260								293	
MG/L (RST)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL			0.032	0.015	0.015								0.021	
MG/L AS ZN	REQUIREMENT			0.1	0.1	0.1								0.1	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 89% IN 1990.

010892-00-0(0) AMERICAN BARRICK RESOURCES CORP., MCDERM KIRKLAND LAKE REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL			27681	30234	29376								29097	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL			7.21	7.01	7.24								7.15	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	CALC			0.103	0.091	0.098								0.0973	
KG /DAY (ASUT)	REQUIREMENT														
CYANIDE AVAIL	CALC			0.517	0.311	0.254								0.361	
KG /DAY (CCNAUR)	REQUIREMENT														
CYANIDE FREE	CALC			0.345	0.09	0.059								0.165	
KG /DAY (CCNFUR)	GUIDELINE														
CADMIUM UNF.TOT.	CALC			0.042	0.062	0.037								0.047	
KG /DAY (CDUT)	REQUIREMENT														
COPPER UNF.TOT.	CALC			4.07	2.63	1.88								2.86	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC			23.1	55.7	17.9								32.2	
KG /DAY (FEUT)	GUIDELINE														
MERCURY UNF.TOT.	CALC			0.036	0.003	0.002								0.0137	
KG /DAY (HGUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC			0.159	0.143	0.167								0.156	
KG /DAY (NIUT)	REQUIREMENT														
LEAD UNF.TOT.	CALC			0.26	0.455	0.405								0.373	
KG /DAY (PBUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC			87.7	62.3	110								86.7	
KG /DAY (RSP)	REQUIREMENT														
SULPHATE UNF.REAC	CALC				310									310	
KG /DAY (SSO4UR)	GUIDELINE														
ZINC UNF.TOT.	CALC			0.842	0.454	0.456								0.584	
KG /DAY (ZNUT)	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: American Standard (Division of Wabco Standard Inc.) Cambridge

IMIS NO.: 0001470004

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 3041, 3042

RECEIVING WATERBODY:
DIRECT: Speed River to Grand River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Sinks, tubs, etc. are fabricated and enamelled.

EFFLUENT CHARACTERISTICS: Contains heavy metals

EFFLUENT TREATMENT: pH adjustment, precipitation, flocculation and sedimentation 5 days a week, 230 days a year. Sludge is dewatered by a filter press.

DISCHARGE TYPE: Continuous flow from 7 am to 12 pm through a drain.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval requires discharge to meet Objectives for The Control of Industrial Waste Discharges in Ontario. New Certificate issued Dec 28/90 sets concentration and loading limits.

EXCEEDANCES: Suspended Solids (RSP) (2): A replacement parts washer was installed August 1989 and its batch discharge caused the exceedances.

REMEDIAL ACTIONS: Company submitted application for approval in July 1990 for WWTP upgrade which consists of flow equalization and improved sedimentation. New C. of A. issued Dec 28/90. Upgrade was completed July 1991. Compliance achieved after commissioning in 1991.

COMMENTS: Reported loadings are based on measured flow rate.

04/16/92

000147-00-0(4) AMERICAN STANDARD DIVISION OF WABCO STANDARD INC CAMBRIDGE

REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	156	153	171	116	127	134	94	97	89	109	99	84	119	
M3 /DAY (FTFLOW)	REQUIREMENT	454	454	454	454	454	454	454	454	454	454	454	454	454	0
PH	ACTUAL	8.9	8.1	8.6	9.16	5.8	7.4	8.2	7.35	7.9	8.73	7.9	7.33	7.95	
(PH)	REQUIREMENT														0
IRON UNF.TOT.	ACTUAL	0.129	0.103	0.021	0.036	0.069	0.058	0.017	0.012	0.036	0.012	0.013	0.021	0.044	
KG /DAY (FEUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0
NICKEL UNF.TOT.	ACTUAL	0.04	0.006	0.014	0.005	0.061	0.01	0.006	0.013	0.001	0.008	0.011	0.008	0.015	
KG /DAY (NIUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0
RESIDUE PARTIC.	ACTUAL	14.4	12.8	2.56	5.07	1.46	1.70	1.08	0.483	0.893	3.60	1.03	1.27	3.86	
KG /DAY (RSP)	REQUIREMENT	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	2
ZINC UNF.TOT.	ACTUAL	0.046	0.023	0.048	0.026	0.168	0.142	0.005	0.133	0.004	0.01	0.111	0.005	0.06	
KG /DAY (ZNUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Atlas Specialty Steels (Division of Sammi Atlas Inc.) Welland

IMISNO.: 0001610005

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Secondary steel industry; recycle scrap metal for melting in electric furnace. Various grades of stainless steel are made. Plant is not an integrated mill as there are no coking operations or blast furnaces.

EFFLUENT CHARACTERISTICS: Contains heavy metals, Total Suspended Solids and Oil and Grease. Results presented from MISA monitoring.

EFFLUENT TREATMENT: Contact and non-contact cooling water are treated at two filtration plants. Waste Acid treatment consists of pH adjustment and solids removal.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Industrial Waste Discharges In Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring using "Gross" Loadings in 1989 and should not be compared to Net Data previously reported. The reported increase in RSP Loadings does not imply a decrease in effluent quality.

The data for eight of ten trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the 42 inch sewer effluent to have been not acutely lethal to test fish. The remaining samples were determined to have 96 hour LC50s > 100 % effluent. An audit sample tested by MOE was also determined to had been non-lethal to test fish.

04/16/92

000161-00-0(5) ATLAS SPECIALTY STEELS, DIVISION OF SAMMI ATLAS INC. WELLAND — REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, 42" SEWER DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	14979	8869	11889	17111	19989	17515	8841	19933	17000	17499	19460	10931	15335	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.54	7.61	7.33	7.23	6.94	6.93	6.82	7.3	7.53	7.23	7.38	7.93	7.31	
(PH)	GUIDELINE														0
CADMIUM UNF.TOT.	CALC	0.003		0.004	0.004	0.004	0.004	0.001	0.005	0.006	0.003	0.024	0.021	0.00718	
KG /DAY (CDUT)	GUIDELINE	0.0148		0.0176	0.0186	0.0216	0.0214	0.00523	0.0257	0.0275	0.0153	0.024	0.021	0.0193	0
CHROMIUM UNF.TOT.	CALC	0.222	0.765	0.441	0.447	0.324	0.171	0.11	0.231	0.385	0.169	0.311	0.32	0.325	
KG /DAY (CRUT)	GUIDELINE	14.8	10.9	17.6	18.6	21.6	21.4	5.23	25.7	27.5	15.3	23.9	21.3	18.7	0
IRON UNF.TOT.	CALC	1.18	3.17	3.63	6.31	6.42	0.814	1.36	2.93	5.92	2.47	9.38	10.5	4.51	
KG /DAY (FEUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.166	0.127	0.246	0.519	0.255	0.235	0.071	0.302	0.181	0.198	0.437	0.642	0.282	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	92.7	70.2	43.2	171	138	62.8	34	61	62	62.1	73.7	84.6	79.6	
KG /DAY (RSP)	GUIDELINE	230	133	178	257	300	263	134	299	255	262	312	160	232	0
SOLVENT EXTRACT.	CALC	24.3	32.1	47.1	68.8	49.9	21.5	17.5	32.2	33.2	45.5	22.8	25.1	35	
KG /DAY (SOLEXT)	GUIDELINE	230	133	178	257	298	263	134	299	255	263	312	160	232	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 59, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ault Foods Limited
& PLANT LOCATION: Winchester

IMISNO.: 0063240709

MOE REGION: Southeast

DISTRICT Cornwall

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1049

RECEIVING WATERBODY: DIRECT: East Castor river
INDIRECT: Ottawa River

DESCRIPTION OF ACTIVITY: Manufacture of butter, cheese, and dried powder milk-based products.

EFFLUENT CHARACTERISTICS: Effluent generated from processing, cleaning and cooling activities. Contaminants in wastewater primarily organic in nature.

EFFLUENT TREATMENT: Aerobic biological treatment including sludge separation and effluent polishing.

DISCHARGE TYPE: Annual spring discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): June 19, 1986 #4-078-85-866. Stage 3 Performance Compliance Requirements (as Jan. 31,1989):

BOD5, Total	5 mg/L	807 kg/year
Suspended Solids	15 mg/L	2425 kg/year
Total Phosphorus	1 mg/L	161.7 kg/year
Ammonia-Nitrogen	5 mg/L	807 kg/year
Hydrogen Sulphide	0 mg/L	0 kg/year

EXCEEDANCES: Suspended Solids (RSP) (1), Ammonia Nitrogen (1), Biochemical Oxygen Demand (1), Phosphorus (1)

REMEDIAL ACTIONS: Staged upgrading of treatment works (1986-1989) completed but new capacity problem found. Discussions of solutions to capacity problem initiated with company. Resolution to be established in 1992.

COMMENTS:

04/23/92

006324-07-0(9) AULT FOODS LTD.
CONTROL POINT: 0100, WINCHESTER
REPORT DATE: 10 DEC 91

1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				178205									178205	
M3 /YR (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL				2371									2371	
KG /YR (BOD5)	REQUIREMENT				807									807	1
NH3-N TOTAL	ACTUAL				1467									1467	
KG /YR (NNHTUR)	REQUIREMENT				807									807	1
PHOSPHOR UNF.TOT.	ACTUAL				326									326	
KG /YR (PPUT)	REQUIREMENT				162									162	1
RESIDUE PARTIC.	ACTUAL				7262									7262	
KG /YR (RSP)	REQUIREMENT				2425									2425	1
SULPHIDE UNF.REAC	ACTUAL				0									0	
KG /YR (SSIDUR)	REQUIREMENT				0									0	0
PH FIELD	ACTUAL				7.65									7.65	
(FWPH)	GUIDELINE														
WATER TEMP	ACTUAL				4.1									4.1	
DEG.C (FWTEMP)	REQUIREMENT														

****

THIS DISCHARGE EXCEEDED ITS ANNUAL LIMITS 4 OUT OF 5, FOR A TOTAL COMPLIANCE RECORD OF 20% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Beaver Wood Fibre Company Thorold

IMISNO.:0001620004

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Beaverdams Creek to Twelve Mile Creek
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Paperboard is made from pulp and clean wastepaper.

EFFLUENT CHARACTERISTICS: Contains Biochemical Oxygen Demand and suspended solids.

EFFLUENT TREATMENT: Primary clarifier on total mill effluent removes solids. Spills of broke (pulp in water) and rejects from pulp cleaning are either recycled or sent to landfill. Sludge handling and mill effluent pumping systems were duplicated to minimize clarifier bypassing.

DISCHARGE TYPE: Continuous through a submerged outfall.

COMPANY LIMITS SET BY: MOE GUIDELINES: Target loads set by Pulp and Paper Committee

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Company submitted comprehensive abatement strategy to reduce discharge loadings of BOD & SS. Company intention is to comply with MISA objectives.

The data for nine of twelve trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Process Effluent p-1 to have been non-lethal to test fish. The other three samples produced a 96 hour LC50 of > 100 % effluent. An audit sample tested by MOE was determined non-lethal.

04/16/92

000162-00-0(4) BEAVER WOOD FIBRE COMPANY LIMITED THOROLD REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, PROCESS EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	15650	15143	15400	14308	15332	15057	15140	14910	15365	15165	15471	14480	15118	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	1988	1744	1828	1735	1781	1795	1697	2048	2196	2070	2120	2061	1922	
KG /DAY (BOD5)	GUIDELINE	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	0
RESIDUE PARTIC.	CALC	897	769	805	656	723	629	560	586	629	657	688	680	690	
KG /DAY (RSP)	GUIDELINE	904	904	904	904	904	904	904	904	904	904	904	904	904	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: B. F. Goodrich
& PLANT LOCATION: Niagara Falls

IMISNO.:0000370304

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Welland River
INDIRECT: Niagara River

DESCRIPTION OF ACTIVITY: Polyvinyl chloride resins are made from purchased vinyl chloride monomer.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: The wastewater treatment system consists of biological treatment which was installed in June 1990.

DISCHARGE TYPE: Continuous through an open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): issued in June 1989. Certificate of Approval Limits:

PARAMETER	MAXIMUM ALLOWABLE DAILY CONCENTRATION	MAXIMUM ALLOWABLE MONTHLY CONCENTRATION
Biochemical Oxygen Demand (BOD5)	25 mg/L	15 mg/L
Ammonia + Ammonium (N)	10 mg/L	6 mg/L
Total Suspended Solids	25 mg/L	15 mg/L
Total Phosphorus	1 mg/L	1 mg/L
Vinyl Chloride	0.7 mg/L	0.5 mg/L
pH	6.5 to 8.5	
Flow	Maximum Allowable 5,000 m^3/day	

EXCEEDANCES: Company exceeded maximum allowable daily concentrations for Suspended Solids (38), Vinyl Chloride Monomer (3), Ammonia + Ammonium (1). The company has exceeded the daily range of pH 6.5 to 8.5 on twelve (12) occasions and the maximum allowable rate of discharge on fifteen (15) occasions. The company exceeded monthly requirements for Biochemical Oxygen Demand (2) and Suspended Solids (10) times.

REMEDIAL ACTIONS: All exceedances were attributed to the installation and commissioning of the expansion of the polyvinyl chloride resin plant. A new wastewater treatment system Certificate of Approval was issued in June 1989 introducing both daily and monthly requirements. Although construction of the upgraded biological wastewater treatment system commenced in June 1990, commissioning is still ongoing.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: B. F. Goodrich ...continued
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0000370304

COMMENTS: The data for seven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Combined effluent to have been not acutely lethal to test fish. The company was previously assessed on Net Suspended Solids.

04/16/92

000037-03-0(4) B.F. GOODRICH CANADA INC. NIAGARA FALLS REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3358	3711	2929	3088	2335	2000	2131	1840	1688	1792	1676	2957	2459	
M3 /DAY (FTFLOW)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
PH	ACTUAL	7.75	7.67	7.43	7.66	7.76	7.97	8.04	8.06	7.91	8	8.08	7.91	7.85	
(PH)	REQUIREMENT														S/C
BOD 5 DAY	CALC	14.1	42.5	49.9	24.8	17.5	9.52	27.4	5.04	8.48	27.6	17.1	6.57	20.9	
KG /DAY (BOD5)	REQUIREMENT	61.5	47.4	46.5	45.5	38	26	37.3	27.4	23.8	26.9	24	49.6	37.8	2
CHEM. OX DEMAND	CALC			49.4			60.1			29.6				46.4	
KG /DAY (COD)	GUIDELINE														
NH3-N TOTAL	CALC	1.42	0.323	0.763	1.18	0.646	0.244	0.692	0.675	0.717	4.84	9.03	5.35	2.16	
KG /DAY (NNHTFR)	REQUIREMENT	20.4	22.9	16.7	18.1	13.5	12.1	15.1	12.2	9.66	10.8	9.48	14.6	14.6	0
PHOSPHOR UNF.TOT.	CALC	0.281	0.284	0.183	0.128	0.676	0.158	0.192	0.184	0.145	0	0.155	0.286	0.223	
KG /DAY (PPUT)	REQUIREMENT	3.40	3.82	2.78	3.02	2.25	2.02	2.51	2.04	1.61	1.79	1.81	3.01	2.51	0
RESIDUE PARTIC.	CALC	118	101	61.7	85.3	39.8	108	25.7	35.9	37.7	41.8	27.8	32.8	59.6	
KG /DAY (RSP)	REQUIREMENT	51.1	57.3	41.7	44.9	33.8	30.3	37.8	30.6	24.1	26.9	27.1	45.2	37.6	10
VINYL CHLORIDE	CALC	0.405	1.39	0.811	0.371	0.106	0.219	0.048	0.003	0.001	0	0.012	0.042	0.3	
KG /DAY (X1VCL)	REQUIREMENT	1.68	1.86	1.46	1.54	1.17	1	1.07	0.92	0.84	0.03	0.84	1.48	1.2	0

NOTE: S/C - SEE COMMENTS, FOR PH-LIMITS SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 83.3 % IN 1990.

RSF AND RST NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Boise Cascade Canada Ltd. Fort Frances

IMIS NO.: 0000870105

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Rainy River
INDIRECT: Lake of the Woods

DESCRIPTION OF ACTIVITY: Mainly softwood (black spruce, jack pine and balsam fir) logs and chips are converted into bleached kraft pulp and ground wood paper specialties. Crude tall oil is also produced.

EFFLUENT CHARACTERISTICS: Suspended solids (bark, wood, paper) and trace amounts of organics including chlorinated compounds

EFFLUENT TREATMENT: Ground wood wet woodroom effluent is treated by screens and clarifier to remove solids. Paper machine effluents are treated by disc filter saveall for fibre recovery and a clarifier for solids removal. The total mill effluent (kraft plus paper clarifier) is then treated through a settling basin for further solids removal, followed by an aeration lagoon for the biological removal of oxygen demanding substances.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): issued October, 1989, superseding Certificate of Approval #4-012-82-869, established limits for TSS and BOD5. BOD5 (14,000 kg/day in winter and 12,000 kg/day in summer) and suspended solids (12,000 kg/day) limits are 30 day running averages.

EXCEEDANCES: Suspended Solids (RSP) (4)

REMEDIAL ACTIONS: Settled material was resuspended with the introduction of new aerators in the ASB. This continued for approximately four months, until the system restabilized.

COMMENTS: Six of nine trout bioassays conducted in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged 28.3 - 72.6 %. The remaining three samples have measured 96 hour LC50s of > 100 % effluent.

The data for ten of twelve trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the total mill final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent to kill 50 % of the test fish by the end of the four days exposure ranged from 26.7 - 79.7 % effluent. The remaining samples were determined not acutely lethal to test fish. An audit sample tested by MOE was determined non-lethal.
02/27/91

000087-01-0(5) BOISE-CASCADE CANADA LTD. FORT FRANCES REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, FINAL MILL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	79500	77800	76600	73500	77600	82500	81500	87300	80500	87200	85400	84900	81192	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	13400	9000	7600	8000	10300	10000	7000	9400	7900	9000	9800	10900	9358	
KG /DAY (BOD5)	REQUIREMENT	14000	14000	14000	14000	12000	12000	12000	12000	12000	12000	14000	14000	13000	0
RESIDUE PARTIC.	ACTUAL	10400	9600	8000	8400	13300	15900	16000	14900	8000	9700	8900	8900	11000	
KG /DAY (RSP)	REQUIREMENT	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	4

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CERTIFICATE OF APPROVAL REQUIREMENTS.

000087-01-0(5) BOISE-CASCADE CANADA LTD. FORT FRANCES REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, FINAL MILL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	77853	77868	76111	71696	77617	82558	80811	87347	78400	87517	85511	84951	80687	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	12800	9290	7160	7440	10200	11300	7770	9910	7190	9100	9260	11400	9402	
KG /DAY (BOD5)	REQUIREMENT														
RESIDUE PARTIC.	CALC	10200	9470	8000	8170	13300	16000	15900	14800	8000	9790	8930	9030	10966	
KG /DAY (RSP)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Boise Cascade Canada Ltd. IMIS NO.: 0000870006
& PLANT LOCATION: Kenora

MOE REGION: Northwest DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Winnipeg River
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (jack pine, black spruce) logs are made into newsprint through sulphite and stone ground wood pulping.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, paper, wood) and a variety of organic compounds.

EFFLUENT TREATMENT: A large clarifier removes solids from the paper machine room and sulphite high-solids wastewaters. Two large screens remove solids from low-solids wastewaters at the paper machines, sulphite blow pit washings and stone ground wood bearing water.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-096-84-877, issued in 1987, restricts BOD5 loadings to less than 35,000 kg/day and suspended solids (RSP) loadings to less than 4,500 kg/day, both based on 30 day running averages. No. 4-0048-89-006, issued in May 1989 continues limits outlined above after construction of a new 450 TPD thermo-mechanical pulp (TMP)mill in 1991. TMP Mill construction postponed due to economic considerations.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Two trout bioassays conducted in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 7.1 and 11.3 %.

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent to kill 50 % of the test fish by the end of the four days exposure ranged from 1.7 - 5.5 % effluent. An audit sample tested by MOE was determined acutely lethal. The 96 hour LC50 was 6.3 % effluent.

11/05/90

000087-00-0(6) BOISE-CASCADE CANADA LTD. KENORA REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	46120	48640	45340	46440	49400	50900	53690	58420	57700	56400	52530	46570	51013	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	31500	31400	31500	31700	30000	29900	23000	23100	24400	28100	29300	30100	28667	0
KG /DAY (BOD5)	REQUIREMENT	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	
RESIDUE PARTIC.	ACTUAL	3060	3440	3200	3800	3600	3550	3160	3420	3370	3660	3160	2990	3368	
KG /DAY (RSP)	REQUIREMENT	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CERTIFICATE OF APPROVAL REQUIREMENTS.

000087-00-0(6) BOISE-CASCADE CANADA LTD. KENORA REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	46123	48642	45344	46509	49367	50870	53678	58172	58895	56424	52546	48523	51258	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	32000	40100	39200	34300	37000	31200	28300	29800	31000	33700	30300	31900	33233	
KG /DAY (BOD5)	REQUIREMENT														
RESIDUE PARTIC.	CALC	3060	3440	3190	3770	3560	3540	3180	3430	3430	3660	3160	3110	3378	
KG /DAY (RSP)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Bond Gold Canada Ltd. Muskeg Lake

IMIS NO.: 0122040009

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0527

RECEIVING WATERBODY: DIRECT: Hour Lake
INDIRECT: Attawapiskat River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewater when necessary, for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-0065-87-886, issued August 5, 1988, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc and lead.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: One trout bioassay conducted in 1990, indicated the final effluent to have been non-acutely lethal to test fish.

11/08/90

012204-00-0(9) BOND GOLD - GOLDEN PATRICIA — KENORA DISTRICT — REPORT DATE: 6 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				2770	3060	3530	960	1330	310	6170	2100	420	2294	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL				1	1	1	1	1.25	1	1	1	2	1.14	
UG/L (ASUT)	REQUIREMENT				500	500	500	500	500	500	500	500	500	500	0
CYANIDE AVAIL	ACTUAL				0.02	0.03	0.04	0.06	0.05	0.05	0.03	0.05	0.02	0.04	
MG/L AS HCN	REQUIREMENT				2	2	2	2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL				5.00	9.67	6.17	8.50	9.00	5.00	9.80	7.75	5.00	7.32	
UG/L (CUUT)	REQUIREMENT				1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0
NICKEL UNF.TOT.	ACTUAL				5.00	5.00	6.17	5.00	5.00	5.00	5.00	5.00	10.00	5.69	
UG/L (NIUT)	REQUIREMENT				1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0
LEAD UNF.TOT.	ACTUAL				10.00	10.00	11.67	10.00	10.00	10.00	10.00	10.00	10.00	10.19	
UG/L (PBUT)	REQUIREMENT				1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0
PH	ACTUAL				7.30	7.29	6.97	7.02	7.14	7.19	7.23	7.18	6.72	7.12	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL				5.00	5.00	10.00	11.67	5.75	6.00	5.00	33.8	8.50	10.07	
UG/L (ZNUT)	REQUIREMENT				1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	0

NOTE: PH-LIMITS 5.50 - 10.60

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 63, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

COMPANY DID NOT DISCHARGE JANUARY TO MARCH 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: BTL Specialty Resins, Belleville

IMISNO.: 0001860006

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Bay of Quinte
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Formaldehyde and hexamethylene tetramine produced on site are used to make phenol and formaldehyde resins.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics such as phenols.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Phenols - 20 µg/L from Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial).

EXCEEDANCES: Phenols (2)

REMEDIAL ACTIONS: Decommissioning of plant throughout 1990 and 1991.

COMMENTS: BTL ceased operation on March 31, 1990. Monitoring of east and west outfalls was discontinued December 01, 1991. Site decommissioning workplan being prepared.

01/08/92

000186-00-0(6) BTL SPECIALTY RESINS (BELLEVILLE PLANT) BELLEVILLE REPORT DATE: 3 MAR 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN #	FEB #	MAR #	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1278	2072	1694	2558	1362								1793	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.061	0.171	0.0118	0.013	0.01								0.0533	
KG /DAY (PHNOL)	GUIDELINE	0.0239	0.0447	0.0330	0.051	0.027								0.0359	2

NOTE: # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 5, FOR A TOTAL COMPLIANCE RECORD OF 60 % IN 1990.

000186-00-0(6) BTL SPECIALTY RESINS (BELLEVILLE PLANT) BELLEVILLE REPORT DATE: 3 MAR 92
CONTROL POINT: 0200, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN #	FEB #	MAR #	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	790	26	813	846	724	796	1156	2775	1052	1543	1772		1118	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.007	0.0043	0.0706	0.0085	0.0085	0.0008	0.0069	0.0083	0.0059	0.0123	0.0053		0.0126	
KG /DAY (PHNOL)	GUIDELINE	0.0153	0.000502	0.0173	0.0169	0.0145	0.0159	0.0231	0.0555	0.021	0.0309	0.0354		0.0224	2

NOTE: # - INDICATES MISA DATA

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 81.8 % IN 1990.

PLANT DECOMMISSIONED MARCH 1990. ADDITIONAL MONITORING CONTINUED (IN IMIS) UNTIL DECEMBER 1, 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: CAMECO
& PLANT LOCATION: Blind River

IMIS NO.: 0000820308

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Mississagi River mouth
INDIRECT: North Channel (Lake Huron)

DESCRIPTION OF ACTIVITY: Uranium is refined using concentrated nitric acid solvent , extraction and evaporation/decomposition of the nitrate to the oxide by the addition of heat.

EFFLUENT CHARACTERISTICS: Effluent contains nitrates, uranium and phosphorus.

EFFLUENT TREATMENT: Holding ponds.

DISCHARGE TYPE: Batch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Under AECB licence requirements.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for a trout bioassay submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to had been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 10.9 %.

12/16/91

000082-03-0(8) CAMECO A CANADIAN MINING/ENERGY CORP. BLIND RIVER REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	390	525	496	460	539	611				434	510	666	515	
M3 /DAY (FTFLOW)	GUIDELINE														
NO3-N UNF.REAC	ACTUAL	17	44	37	22	16	19				13	15	13	21.8	
MG/L (NNO3UR)	REQUIREMENT	1000	1000	1000	1000	1000	1000				1000	1000	1000	1000	0
PH	ACTUAL	7.6	7.7	7.4	7.4	7.5	7.5				7.7	7	7.3	7.5	
(PH)	REQUIREMENT														0
URANIUM UNF.TOT.	ACTUAL	0.08	0.02	0.06	0.02	0.07	0.08				0.09	0.51	0.51	0.16	
MG/L (UUUT)	GUIDELINE	20	20	20	20	20	20				20	20	20	20	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000082-03-0(8) CAMECO A CANADIAN MINING/ENERGY CORP. BLIND RIVER REPORT DATE: 09 JAN 92
CONTROL POINT: 0300, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		678	712	567	632	784				701	692	585	669	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.92	7.72	7.52	7.41	7.3				6.73	6.99	7.37	7.37	
(PH)	REQUIREMENT														
NO2+NO3N FIL.REAC	ACTUAL		63.9	104	11.4	61.4	41.2				15.9	31.2	28.2	44.7	
KG /DAY (NNOTFR)	REQUIREMENT														
URANIUM UNF.TOT.	CALC		0.007	0.048	0.007	0.006	0.016				0.033	0.064	0.078	0.0324	
KG /DAY (UUUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ABOVE.

EFFLUENT FROM CONTROL POINT 0300 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

NNO3UR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: CAMECO
& PLANT LOCATION: Port Granby

IMIS NO.: 0000820209

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Leachate from the site is collected in two ponds. Leachate is chemically treated for arsenic, radium and uranium removal. Precipitated metals are settled out in ponds, and the treated effluent is discharged to Lake Ontario together with off-site groundwater intercepted at the periphery of the site.

DISCHARGE TYPE: Continous surface.

COMPANY LIMITS SET BY: AECB LIMITS:

Radium 226	0.37 BQ/L
pH	6.0 to 9.0

EXCEEDANCES: Arsenic (11)

REMEDIAL ACTIONS: This site is scheduled for decommissioning when a Federal Government Task Force identifies a new site for receiving waste. Following commissioning of new site all waste in Port Granby site will be removed.

COMMENTS: Arsenic concentration limit for 0200 is a provincial/federal mining effluent guideline. Arsenic limit for the final discharge was removed from the operating licence by the AECB in 1987. Control point 0100 is an intermediate control point and will therefore not be included in the 1990 report.

04/16/92

000082-02-0(9) CAMECO A CANADIAN MINING/ENERGY CORP. PORT GRANBY REPORT DATE: 22 NOV 91

CONTROL POINT: 0200, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	252	173	302	264	238	180	165	103	127	173	107	194	190	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.19	0.12	0.17	0.13	0.16	0.11	0.15	0.086	0.16	0.28	0.1	0.23	0.157	
KG /DAY (ASUT)	GUIDELINE	0.126	0.087	0.151	0.132	0.119	0.09	0.083	0.052	0.064	0.087	0.054	0.097	0.095	11
URANIUM UNF.TOT.	ACTUAL	0.16	0.11	0.21	0.18	0.2	0.16	0.14	0.052	0.11	0.15	0.07	0.15	0.141	
KG /DAY (UUUT)	GUIDELINE	0.756	0.519	0.906	0.792	0.714	0.54	0.495	0.309	0.381	0.519	0.321	0.582	0.57	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1990.

000082-02-0(9) CAMECO A CANADIAN MINING/ENERGY CORP. PORT GRANBY REPORT DATE: 22 NOV 91

CONTROL POINT: 0200, 1990 DATA

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RADIUM 226	ACTUAL	0.161	0.111	0.098	0.076	0.11	0.08	0.11	0.072	0.083	0.068	0.089	0.113	0.098	
BQ/L AS RA	REQUIREMENT	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS FACILITY IS NOT CURRENTLY MONITORED UNDER MISA PROGRAM.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: CAMECO
& PLANT LOCATION: Port Hope

IMIS NO.: 0000820001

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Uranium trioxide (UO3) is converted into uranium dioxide (UO2) and uranium hexafluoride (UF6) for use as fuel in the nuclear industry.

EFFLUENT CHARACTERISTICS: Cooling water may contain fluorides, uranium, ammonia plus nitrate.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Submerged cooling water pipes discharge continuously when plant is operating.

COMPANY LIMITS SET BY: AECB LIMITS:

Fluoride	1.5 mg/L
NH3-N	0.5 mg/L
NO2 + NO3N	25 mg/L
Uranium	0.5 mg/L

EXCEEDANCES: NH3-N Total (1)

REMEDIAL ACTIONS: None required.

COMMENTS: A marginal exceedance of the NH3-N guideline limit for control point 0300 occurred in January, 1990. Ammonia exceedance was due to elevated levels in the intake water. Plant was shut down for the months of July, August, and September 1990. Control point 0200 is used as the compliance assessment point with respect to AECB license limits. This plant is subject to MISA, Industrial Mining and Refining Sector.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the East UF6 Discharge effluent to have been not acutely lethal to test fish.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the UO2 Discharge effluent to have been not acutely lethal to test fish.

04/16/92

000082-00-0(1) CAMECO A CANADIAN MINING/ENERGY CORP. PORT HOPE REPORT DATE: 22 NOV 91
CONTROL POINT: 0200, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLUORIDE UNF.TOT.	ACTUAL	0.24	0.21	0.21	0.22	0.26	0.23				0.25	0.21	0.21	0.227	
MG/L AS F (FFIDUT)	REQUIREMENT	1.5	1.5	1.5	1.5	1.5	1.5				1.5	1.5	1.5	1.5	0
NH3-N TOTAL	ACTUAL	0.32	0.29	0.36	0.25	0.24	0.14				0.11	0.18	0.21	0.233	
MG/L AS N (NNHTUR)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5	0.5	0.5	0
NO2+NO3N UNF.REAC	ACTUAL	2.25	2.98	2.78	2.23	1.45	1.2				0.93	1.5	1.68	1.89	
MG/L AS N (NNOTUR)	REQUIREMENT	25	25	25	25	25	25				25	25	25	25	0
URANIUM UNF.TOT.	ACTUAL	0.07	0.03	0.03	0.04	0.04	0.03				0.05	0.03	0.03	0.039	
MG/L (UUUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5	0.5	0.5	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000082-00-0(1) CAMECO A CANADIAN MINING/ENERGY CORP. PORT HOPE REPORT DATE: 07 JAN 92
CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		19256	19934	16286	22009	17809				20000	21726	17148	19271	
M3 /DAY (FTFLOW)	GUIDELINE														
URANIUM UNF.TOT.	CALC		1.09	0.424	0.296	1.1	0.113				0.106	0.61	1.93	0.709	
KG/DAY (UUUT)	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ABOVE.

EFFLUENT FROM CONTROL POINT 0100 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINT 0200 (IMIS).

000082-00-0(1) CAMECO A CANADIAN MINING/ENERGY CORP. PORT HOPE REPORT DATE: 10 JAN 92
CONTROL POINT: 0300, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLUORIDE UNF.TOT.	ACTUAL	0.24	0.23	0.21	0.21	0.25	0.25				0.26	0.22	0.22	0.232	
MG/L AS F (FFIDUT)	GUIDELINE	1.5	1.5	1.5	1.5	1.5	1.5				1.5	1.5	1.5	1.5	0
NH3-N TOTAL	ACTUAL	0.57	0.43	0.49	0.35	0.3	0.15				0.1	0.11	0.1	0.289	
MG/L AS N (NNHTUR)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5	0.5	0.5	1
NO2+NO3N UNF.REAC	ACTUAL	2.1	3.78	2.7	2.3	1.5	1.05				1.03	1.38	1.83	1.96	
MG/L AS N (NNOTUR)	GUIDELINE	25	25	25	25	25	25				25	25	25	25	0
URANIUM UNF.TOT.	ACTUAL	0.05	0.03	0.04	0.16	0.03	0.02				0.05	0.03	0.03	0.049	
MG/L (UUUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5	0.5	0.5	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: CAMECO
& PLANT LOCATION: Welcome Waste Site

IMISNO.: 0000820100

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Leachate from the site is collected in two ponds. Leachate is chemically treated for arsenic, radium and uranium removal. Precipitated metals are settled out in the ponds, and the treated effluent is discharged to Lake Ontario together with off-site groundwater intercepted at the periphery of the site.

DISCHARGE TYPE: Continuous submerged.

COMPANY LIMITS SET BY: AECB LIMITS:

Arsenic	0.5 mg/L
Radium 226	0.37 BQ/L
pH	6.0 to 9.0

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Decommissioning of the site is under review.

04/16/92

000082-01-0(0) CAMECO A CANADIAN MINING/ENERGY CORP. WELCOME REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	357	376	544	586	430	242	105	114	89	428	203	496	331	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.64	7.38	8.03	7.75	7.91	7.85	7.79	7.82	7.68	7.97	8.07	7.8	
(PH)	REQUIREMENT														0
ARSENIC UNF.TOT.	ACTUAL	0.005	0.008	0.016	0.006	0.005	0.003	0.014	0.011	0.007	0.013	0.001	0.004	0.008	
KG /DAY (ASUT)	REQUIREMENT	0.179	0.188	0.272	0.293	0.215	0.121	0.053	0.057	0.045	0.214	0.102	0.248	0.165	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000082-01-0(0) CAMECO A CANADIAN MINING/ENERGY CORP. WELCOME REPORT DATE: 25 NOV 91

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RADIUM 226 FIL.	ACTUAL	0.055	0.055	0.085	0.055	0.059	0.055	0.065	0.052	0.055	0.055	0.055	0.055	0.058	
BQ/L (RA226F)	REQUIREMENT	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS FACILITY IS NOT CURRENTLY MONITORED UNDER MISA PROGRAM.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Campbell Soup Co. Ltd. Blanshard Township, Perth County

IMISNO.:0000970004

MOE REGION: Southwest

DISTRICT: London

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 101

RECEIVING WATERBODY: DIRECT: 248 km from Thames River (North Branch)
INDIRECT:

DESCRIPTION OF ACTIVITY: Poultry processing

EFFLUENT CHARACTERISTICS: Contains suspended solids, phosphorus and biodegradable organics.

EFFLUENT TREATMENT: Activated sludge treatment works with diffused outfall to river, sludge storage and irrigation on company land

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Yes.

EXCEEDANCES: Suspended Solids (RSP) (2)

REMEDIAL ACTIONS: In June,1989 a consultant was retained to review existing plant operational procedures and to make any necessary operational/process and equipment changes to upgrade the effluent discharge to compliance standards. Several operational changes in 1989 and 1990 have resulted in virtual compliance with effluent discharge criteria. Ongoing operational improvements will result in further effluent loading reductions. It is anticipated that full compliance will be achieved in 1992.

COMMENTS: There were two minor exceedances of suspended solids criteria in 1990.

01/08/91

000097-00-0(4) CAMPBELL SOUP COMPANY LTD — PO BOX 1180 ST MARYS — REPORT DATE: 24 JAN 92

CONTROL POINT: 0100, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	600	600	620	662	583	601	625	570	617	594	557	581	601	
M3 /DAY (FTFLOW)	REQUIREMENT														
PH	ACTUAL	7.2	7.2	7.2	7.1	7.2	7.3	7.3	7.4	7.3	7.4	7.3	7.2	7.26	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	34	23	32	31	47	25	30	29	24	22	17	15	27.4	
KG /DAY (BOD5)	REQUIREMENT	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	0
PO4 FIL.REAC	ACTUAL	5.6	2	2.5	2.6	2.5	2.4	2.5	1.3	2.2	0.9	1.9	1.3	2.31	
KG /DAY (PPO4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	55	32	39	42	49	29	26	35	56	34	42	40	39.9	
KG /DAY (RSP)	REQUIREMENT	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	2
RESIDUE TOTAL	ACTUAL	1271	1250	1400	1676	1538	1608	1745	1428	1389	1515	1448	1579	1487	
KG /DAY (RST)	GUIDELINE														

NOTE: PH-LIMITS 6.50 - 8.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Canadian Oxy Chemicals Ltd. (previously reported as Canadian Oxy-Durez) Fort Erie

IMISNO.: 0001590009

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures phenol-formaldehyde resins.

EFFLUENT CHARACTERISTICS: Recycles waste water; cooling water discharge only.

EFFLUENT TREATMENT: Carbon absorption treatment system.

DISCHARGE TYPE: Continuous through an open outfall. MISA monitoring and IMIS results are presented.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Waste Discharges In Ontario.

EXCEEDANCES: Phenols (3)

REMEDIAL ACTIONS: Source of phenol was identified as contaminated groundwater leaching into the storm sewer system. An investigation commenced in 1990 which identified the soils surrounding two storage tanks as the source of phenol contamination. Excavation of the soil commenced in 1990. Further soil contamination of two additional storage tanks was also identified in 1991. These contaminated soils were removed by December 1991. Further investigation to confirm the elimination of sources of phenol will continue in 1992.

COMMENTS: The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the OT Cooling water effluent to have been not acutely lethal to test fish. The remaining sample when tested produced a 96 hour LC50 of > 100 % effluent.

04/23/92

000159-00-0(9) CANADIANOXY CHEMICALS LTD. FORT ERIE REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN #	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	173	208	101	45	26	23	22	26	114	80	52	69	78	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL										0.012	0	0.0096	0.0072	
KG /DAY (BOD5)	GUIDELINE										1.2	0.774	1.03	1	0
PHENOLS UNF-REAC	CALC	0.028	0.006	0.006	0.000044	0.000052	0.000023			0.000114	0.00078	0.0005	0.00082	0.00423	
KG /DAY (PHNOL)	GUIDELINE	0.00346	0.00416	0.00203	0.000896	0.00052	0.000464			0.00228	0.002	0.001	0.001	0.00178	3
PHOSPHOR UNF.TOT.	CALC	0.003	0.004	0.001	0.002	0.000078		0.000064	0.000233	0.000684	0.00155	0.0018	0.00039	0.00135	
KG /DAY (PPUT)	GUIDELINE	0.173	0.208	0.101	0.0448	0.026		0.0215	0.0259	0.114	0.08	0.052	0.069	0.0832	0
RESIDUE PARTIC.	ACTUAL	0.519	0.832	0.913	0.0896	0.858	0.0464	0.172	0.104	0.228	0	0.082	0.527	0.364	
KG /DAY (RSP)	GUIDELINE	2.59	3.12	1.52	0.672	0.39	0.348	0.323	0.389	1.71	1.2	0.774	1.03	1.17	0

NOTE: # - INDICATES MISA DATA

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 91.7 % IN 1990.

BOD5 AND RSP NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Canadian Pacific Forest Products Ltd. Dryden

IMISNO.:0000840108

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Wabigoon River
INDIRECT: Winnipeg River

DESCRIPTION OF ACTIVITY: Kraft bleached pulp and uncoated fine papers are made from softwoods (jack pine, black spruce).

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper fines etc.) and chemicals from pulping and bleaching liquors, including chlorinated compounds.

EFFLUENT TREATMENT: No solids from the dry woodroom (debarking). Use of a continuous digester and enclosed diffusion washers results in few spills with much less solids and dissolved organics in wastewaters from the processes. Foul condensates are steam stripped to remove odorous organic compounds. Total effluent is treated by a clarifier prior to biological treatment (aeration lagoon), and a foam barrier.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Issued in October, 1989 , superseding Certificate of Approval #4-0168-87-886 established limits for BOD5 and TSS. BOD5 (5,000kg/day) and Suspended Solids (7,500 kg/day). Limits are based on 30 day running averages.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Three of eight trout bioassays conducted in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 14.1, 64.3, and 54.5 %. Of the remaining five samples, four were determined non-lethal and the other had a measured 96 hour LC50 > 100 % effluent.

The data for eight of fourteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final effluent to have been not acutely lethal to test fish. However, five of the remaining samples when tested were determined to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 51.0 - 80.6 %. The other sample when tested produced a 96 hour LC50 of > 100 % effluent. An audit sample tested by the MOE was determined non-lethal.

02/27/91

000084-01-0(8) CANADIAN PACIFIC FOREST PRODUCTS LIMITED DRYDEN REPORT DATE: 14 NOV 91

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	93000	92000	80800	93000	92000	100000	97000	106000	73000	83000	84000	77000	89233	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	3100	2700	2000	3000	2900	2700	1800	1300	1900	2100	2700	2400	2383	
	REQUIREMENT	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	0
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	5000	4600	4000	6100	6200	6400	5200	3900	3900	4400	4900	4600	4933	
	REQUIREMENT	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CONTROL ORDER REQUIREMENTS

000084-01-0(8) CANADIAN PACIFIC FOREST PRODUCTS LIMITED DRYDEN REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL	92871	91571	81161	92733	92548	99633	97133	106323	72448	82774	83633	77161	89166	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	CALC	3160	2980	2440	3090	3380	3820	1790	1580	2800	2640	2950	2560	2766	
	REQUIREMENT														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	5400	4630	4360	6140	6100	6340	5210	4010	3940	4400	4940	4590	5005	
	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Canadian Pacific Forest Products Ltd. Thunder Bay

IMIS NO.: 0000840009

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Newsprint and kraft pulp are made from logs and chips, mainly softwoods (Black spruce, Jack pine, Balsam fir etc.) and some Poplar, by the kraft, stone ground wood and sulphite pulping processes. The kraft pulp is bleached. Crude tall oil is recovered and sold.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre etc.) and chemicals from pulping and bleaching liquors, including chlorinated compounds.

EFFLUENT TREATMENT: Several clarifiers in the newsmill, the kraft mills and neutral fibre kraft (clarification with pH adjustment). Bisulphite liquor is cross recovered. Modern closed cycle process used in "B" kraft Mill. Foul condensates are treated in-mill by steam stripping.

DISCHARGE TYPE: Continuous through a submerged diffuser with a separate clean cooling water discharge.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE):

BOD	Daily Max	70.0 tonne
BOD	30 Day Avg	55.0 tonne
TSS	Daily Max	25.0 tonne
TSS	30 Day Avg	15.0 tonne

MOE OR FEDERAL GUIDELINES: MOE phosphorus guideline of 1 mg/L.

EXCEEDANCES: Suspended Solids (RSP) (4): The daily exceedances were the result of a few unrelated events; each was dealt with independently.

REMEDIAL ACTIONS: New Control Order issued Oct 23/89. New Secondary Treatment Plant is being constructed. Secondary treatment plant effluent is expected to be non-lethal when the new plant is fully operational. Loading limits are to be further reduced as per control order by Dec. 31/91. TMP mill under construction. Sulphite mill will be shut down when T.M.P. mill becomes operational.

COMMENTS: Two trout bioassays conducted in 1990, indicated the Combined Mill Outfall effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 28.9 and 24.%.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Canadian Pacific Forest Products Ltd. ...continued
& PLANT LOCATION: Thunder Bay

IMISNO.: 0000840009

The data for thirteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Combined Mill Outfall effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 5.5 - 54.8 %. An audit sample, tested by MOE, was also determined acutely lethal. The 96 hour LC50 was 67.1 % effluent.

01/11/91

000084-00-0(9) CANADIAN PACIFIC FOREST PRODUCTS LIMITED THUNDER BAY REPORT DATE: 18 NOV 91
CONTROL POINT: 0100, COMBINED MILL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	162668	176430	164517	226001	183227	188334	185334	186130	170691	179001		90830	173924	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	49700	53259	43903	46100	50161	49600	46666	47967	51107	53500		8670	45512	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		S/C
RESIDUE PARTIC.	ACTUAL	14344	13821	12290	16233	19483	14466	12233	11967	12500	11900		4330	13052	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CONTROL ORDER REQUIREMENT.
FOR COMPLIANCE WITH THE CONTROL ORDER SEE THE WASTEWATER DISCHARGE SUMMARY PAGE.

000084-00-0(9) CANADIAN PACIFIC FOREST PRODUCTS LIMITED THUNDER BAY REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, COMBINED MILL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	165484	175679	164517	169000	183226	186083	186940	186369	171255	172655			176121	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	45800	56900	45700	43100	50100	48700	46400	49500	48300	54300			48880	
KG /DAY (BOD5)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC	113	148	124	109	104	97.3	112	121	112	133			117	
KG /DAY (PPUT)	GUIDELINE	172	179	160	174	188	189	192	188	170	175			179	0
RESIDUE PARTIC.	CALC	14900	15800	13600	19500	17100	16200	14300	13400	14000	13700			15250	
KG /DAY (RSP)	REQUIREMENT														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

COMPANY DID NOT DISCHARGE DURING NOVEMBER TO DECEMBER 1990 DUE TO STRIKE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Casco Company
& PLANT LOCATION: Cardinal

IMIS NO.: 0001720002

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 106, 1083, 1089

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Wet milling and oil refining processes

EFFLUENT CHARACTERISTICS: Contains soluble organics, insoluble organics and phosphorus.

EFFLUENT TREATMENT: Aerated cell.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): February 1987 requirement and Direction and November 1987 C. of A. # 4-0017-87-007 establish requirements of 25 mg/L for BOD5 and Suspended Solids, and 1 mg/L for phosphorus commencing on January 01, 1989. BOD and suspended solids assessed on an annual basis and phosphorus monthly.

EXCEEDANCES: Phosphorus (4) at 0200; Phosphorus (2), Biochemical Oxygen Demand (1) at 0300

REMEDIAL ACTIONS: The company made modifications to the treatment plant operation procedures, to minimize cooling of the anaerobic reactor during plant shut downs.. A leaking process cooler was repaired.

COMMENTS:

01/10/92

000172-00-0(2) CASCO COMPANY — CARDINAL — REPORT DATE: 16 JAN 92
CONTROL POINT: 0100, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5900	4900	6280	5900	5200	6100	7400	7000	5900	7300	5300	4800	5998	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	7.5	7.3	7.6	7.3	7.3	7.6	7.6	7.6	7.7	7.4	7.6	7.53	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	242	111	50	51	25.7	122	83	64	49.2	89.4	53	17	79.8	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
CHEM. OX DEMAND	ACTUAL	812	408	170	172	84.7	415	282	208	121	293	196	58	268	
KG /DAY (CODF)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	2.1	0.002	0.3	0.17	0.22	0	0.94	2.5	4	1.4	2	1.86	1.29	
KG /DAY (PPUT)	REQUIREMENT	5.9	4.9	6.28	5.9	5.2	6.1	7.4	7	5.9	7.3	5.3	4.8	6.0	0
RESIDUE PARTIC.	ACTUAL	74	28	66	19	34	60	30.4	32	33	15	17	28	36.4	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000172-00-0(2) CASCO COMPANY — CARDINAL — REPORT DATE: 16 JAN 92
CONTROL POINT: 0200, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5600	4800	5900	6600	8200	10900	12650	13300	10300	9800	8100	7000	8596	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.3	7.3	7.4	7.2	7.2	7.3	7.5	7.6	7.6	7.4	7.5	7.38	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	101	53	14	15	104	109	176	59	44.3	44	89	97	75.4	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
CHEM. OX DEMAND	ACTUAL	299	129	48	53	335	490	599	185	168	158	297	329	258	
KG /DAY (CODF)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	6	5.3	1.2	0.86	8.6	9.8	18.7	6.3	1.7	2	0.67	2.5	5.3	
KG /DAY (PPUT)	REQUIREMENT	5.6	4.8	5.9	6.6	8.2	10.9	12.65	13.3	10.3	9.8	8.1	7	8.60	4
RESIDUE PARTIC.	ACTUAL	87	84	77	47	140	185	179	120	74	55	47	98	99.4	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1990.

000172-00-0(2) CASCO COMPANY
CONTROL POINT: 0300, CARDINAL
REPORT DATE: 16 JAN 92

1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5900	5800	6900	6600	14700	15900	14800	10300	8400	7800	11700	10900	9975	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.6	7.2	7.4	7.2	7.3	7.5	7.5	7.7	7.7	7.4	7.5	7.48	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	834	336	93	118	213	200	258	150	71.4	433	526	251	290	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	249	1
CHEM. OX DEMAND	ACTUAL	1475	1159	348	424	213	1074	876	578	281	532	1874	879	809	
KG /DAY (CODF)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	19	13.6	1.3	1.3	2.4	1.6	6.8	6.4	4.3	3.8	2.6	3.3	5.53	
KG /DAY (PPUT)	REQUIREMENT	5.9	5.8	6.9	6.6	14.7	15.9	14.8	10.3	8.4	7.8	11.7	10.9	10.0	2
RESIDUE PARTIC.	ACTUAL	785	518	85	63	154	191	284	193	125	125	177	222	244	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 93.8 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Celanese Canada Ltd. IMISNO.:0001730001
& PLANT LOCATION: Millhaven

MOE REGION: Southeast DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals SIC CODE: 1811

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Yarns are made from polyester fibre produced by the reaction of ethylene glycol and terephthalic acid

EFFLUENT CHARACTERISTICS: Effluent contains organics.

EFFLUENT TREATMENT: Secondary activated sludge for process and sanitary wastewater.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Water quality based total COD loading to Lake Ontario is limited to 1200 lbs (544 kg) per day as established in November 1975 Requirement and Direction.

MOE OR FEDERAL GUIDELINES: Effluent objectives for process and sanitary wastewater treatment plant set out in Certificate of Approval # 4-006-86-006 dated June 16, 1986 for BOD at 30 mg/L and COD at 60 mg/L.

NOTE: The wastewater treatment plants effluent quality objectives cannot be applied directly to the discharge being reported (at 0100 the Centre Outfall) since the effluent is mixed with cooling water prior to discharge.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Short term effluent COD increases result when treatment facilities receive glycol after summer shut-down for maintenance (2 weeks).

The data for twenty-five trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated all three Combined effluents to have been not acutely lethal to test fish.

01/08/92

000173-00-0(1) CELANESE CANADA INC.
CONTROL POINT: 0100, CENTER OUTFALL KINGSTON
1990 MISA DATA

REPORT DATE: 11 OCT 91

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9239	8945	9146	9311	9308	12882	14491	18969	18247	17031	10679	15934	12848	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	96	154	132	88.4	54.2	68	76.4	93.4	86.5	86.4	60.2	143	94.8	
KG /DAY (BOD5)	REQUIREMENT	262	260	290	279	257	366	435	515	508	504	315	437	369	0
CHEM. OX DEMAND	CALC	278			152			85.7						172	
KG /DAY (COD)	REQUIREMENT	554			559			869						661	0
RESIDUE PARTIC.	CALC	63.7	48.4	28.5	28.5	34.3	44	53.9	63.9	63.9	53.8	34.4	112	52.4	
KG /DAY (RSP)	REQUIREMENT	225	220	232	235	230	317	360	470	438	448	254	364	316	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

BOD5, COD NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Champlain Industries Ltd. IMIS NO.: 0001000108
& PLANT LOCATION: Tara

MOE REGION: Southwest DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Food and Beverage SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Sauble River
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Whey is made into whey based products.

EFFLUENT CHARACTERISTICS: Contains organic compounds such as proteins.

EFFLUENT TREATMENT: Secondary. Oxidation ditch clarifier sludge irrigated onto company land

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE established guidelines.

EXCEEDANCES: Suspended Solids (RSP) (1): Raw sewage strength is highly variable due to varying raw products being processed.

REMEDIAL ACTIONS: Improved operational control.

COMMENTS: Effluent now meeting MOE established guidelines.

0/08/91

000100-01-0(8) CHAMPLAIN INDUSTRIES LIMITED — TARA — REPORT DATE: 27 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	23	23	23	23	23	23	23	23	23	23	23	23	23	
M3 /DAY (FTFLOW)	GUIDELINE	182	182	182	182	182	182	182	182	182	182	182	182	182	0
PH	ACTUAL		7.6	8	7.1	8	7.45	8	8.22	7.7	7.8	7.78	8.42	7.82	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL		0.09	0.09	0.04	0.18	0.46	0.18	0.04	0.138	0.02	0.09	0.09	0.129	
KG /DAY (BOD5)	GUIDELINE		0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0
NH3-N TOTAL	ACTUAL		0.001	0.01	0.01	0.04	0.03	0.04	0.004	0.002	0.025	0.02	0.02	0.018	
KG /DAY (NNHTFR)	GUIDELINE														
PO4 FIL.REAC	ACTUAL		0.11	0.11	0.03	0.01	0.27	0.1	0.027	0.69	0.08	0.09	0.06	0.143	
KG /DAY (PPO4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL		0.23	0.27	0.15	0.23	0.48	0.23	0.05	0.138	0.379	0.43	0.79	0.307	
KG /DAY (RSP)	GUIDELINE		0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	0.575	1

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 45, FOR A TOTAL COMPLIANCE RECORD OF 97.8 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Cornwall Chemicals Limited, Cornwall

IMISNO.: 0033050006

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures carbon tetrachloride and carbon disulphide.

EFFLUENT CHARACTERISTICS: Contains small amounts of carbon tetrachloride and chloroform.

EFFLUENT TREATMENT: Primary pH adjustment and settling.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario guidelines for direct discharge of effluent.

EXCEEDANCES: Biochemical Oxygen Demand (9), Suspended Solids (RSP) (3)

REMEDIAL ACTIONS: Discussions have been ongoing with the company regarding Zero Discharge in conjunction with the St. Lawrence Remedial Action Plan (RAP). Further meetings are to be held to develop an interim reduction proposal. MISA best available technology review is assisting in the development of an order.

COMMENTS: Company is part of MISA Organic Chemical Sector from which legally enforceable requirements for effluent will be set.

The data for six of ten trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Process effluent to have been not acutely lethal to test fish. However, three of the remaining samples when tested were determined to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 16.7, 84.4 and 63.3 %. The other samples when tested produced a 96 hour LC50 of > 100 % effluent. An audit sample tested by the MOE was determined acutely lethal. The 96 hour LC50 was 80.6 % effluent.

04/16/92

003305-00-0(6) CORNWALL CHEMICALS LIMITED — CORNWALL — REPORT DATE: 16 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	539	706	758	742	678	710	717	586	523	343	505	842	637	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	52.4	83	59	145	20	50		13	15	3.9	23	78	45.2	
KG /DAY (BOD5)	GUIDELINE	13.5	17.7	19	18.6	17	17.8		14.7	13.1	8.6	12.6	21.1	14.5	9
CHEM. OX DEMAND	ACTUAL	51	60	105	147	100	77	65	19	30	22	43	144	71.9	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.06	0.06	0.2	0.28	0.12	0.1	0.15	0.16	0.05	0.34	0.1	0.2	0.152	
KG /DAY (PPUT)	GUIDELINE	0.539	0.706	0.758	0.742	0.678	0.71	0.717	0.586	0.523	0.343	0.505	0.842	0.637	0
RESIDUE FILTERED	ACTUAL	886	1029	1481	2507	1356	1181	929	501	265	283	390	1463	1023	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	4	5	7	9	8	31	18	25	10	5	6	8	11.3	
KG /DAY (RSP)	GUIDELINE	13.5	17.7	19	18.6	17	17.8	17.9	14.7	13.1	8.6	12.6	21.1	16.0	3

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 66% IN 1990.

003305-00-0(6) CORNWALL CHEMICALS LIMITED — CORNWALL — REPORT DATE: 3 MAR 92
CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	539	718	758	742	678	710	717	586	523	343	505	842	638	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	CALC	54.6			133			2.73						63.3	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.0587	0.0548	0.164	0.156	0.13	0.148	0.112	0.144	0.0614				0.114	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	5.78	3.62	6.25	13.8	4.67	22.9	23.1	40.9	6.69				14.2	
KG /DAY (RSP)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

BOD5, RSF NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Courtaulds Fibres Canada Cornwall

IMISNO.: 0001900000

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 1829, 1631

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: At Courtaulds Fibres, dissolving sulphite pulp is treated with alkali, carbon disulphide and sulphuric acid to produce rayon.

EFFLUENT CHARACTERISTICS: Contains waste acids, zinc and alkalis used in the process.

EFFLUENT TREATMENT: No external effluent treatment.

DISCHARGE TYPE: Continuous through diffusers.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Guidelines are based on Courtaulds Fibres expired Control Order and proposed 1987 Control Order.

EXCEEDANCES: Zinc (11), Acidity (9), Phosphorus (1)

REMEDIAL ACTIONS: Strategies for a spill reduction program have been developed for Courtaulds Fibres. Requirements for the company's spill reduction actions have been established in an Order that will be served in early 1992.

COMMENTS: The single exceedance of the phosphorus guideline appears to be due to an anomalous result. The company could not verify this result. Legally enforceable requirements for the effluent will be set for Courtaulds Fibres by the MISA program. Acidity of effluent should be within the pH range specified in the Objectives for the Control of Industrial Waste Discharges in Ontario (5.5 to 9.5), ie. no acidity.

The data for eight trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Process effluent # 100 to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 1.0 - 51.0 %.

The data for nine trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Process effluent # 300 to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 10.0 - 28.3 %.

01/09/92

000190-00-0(0) COURTAULDS FIBRES CANADA (CORNWALL PLANT) CORNWALL REPORT DATE: 10 DEC 91

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/ ST. LAWRENCE R.

INCLUDES CONTROL POINTS: 0100 0300 - 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8271	8106	6056	7015	7535	8142	6026	5179	4651	3550	4389	5141	6172	
M3 /DAY (FTFLOW)	GUIDELINE														
ACIDITY TOTAL	ACTUAL			6880	6354	6319	6347	5800	3988	2937	2314	3223	3591	4661	
KG /DAY (ACDT)	GUIDELINE			S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		9
CHEM. OX DEMAND	ACTUAL	3623			6189			751						3521	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.56	1.25	0.98	0.65	- 99.1	0.61	0.47	0.406	0.37				11.6	
KG /DAY (PPUT)	GUIDELINE	8.3	8.1	6.1	7	7.5	8.1	6	5.2	4.7				6.78	1
RESIDUE PARTIC.	ACTUAL	1053	756	420	446	567	1040	518	530	618	304	403	350	584	
KG /DAY (RSP)	GUIDELINE	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	0
ZINC UNF.TOT.	ACTUAL	278	305	299	290	246	280	243	234	184		109	190	242	
KG /DAY (ZNUT)	GUIDELINE	50	50	50	50	50	50	50	50	50		50	50	50	11

NOTES: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 21 OUT OF 42, FOR A TOTAL COMPLIANCE RECORD OF 50 % IN 1990.

- = REPORTED VALUE APPEARS TO BE AN ANOMALOUS RESULT.

000190-00-0(0) COURTAULDS FIBRES CANADA (CORNWALL PLANT) CORNWALL REPORT DATE: 10 DEC 91
CONTROL POINT: 0100, PROCESS EFFLUENT 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5647	4371	4986	5674	5798	5379	4634	4029	3582	2386	3542	4035	4505	
M3 /DAY (FTFLOW)	GUIDELINE														
ACIDITY TOTAL	ACTUAL			6880	6354	6319	6347	5800	3988	2937	2314	3223	3591	4661	
KG /DAY (ACDT)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	2259			4312			0						2190	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.38	0.96	0.85	0.51	~ 85.4	0.49	0.42	0.36	0.33				9.97	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	542	236	317	323	420	714	350	395	416	148	282	230	364	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	278	305	299	290	246	280	243	234	184		109	190	242	
KG /DAY (ZNUT)	GUIDELINE														

~ = REPORTED VALUE APPEARS TO BE AN ANOMALOUS RESULT.

000190-00-0(0) COURTAULDS FIBRES CANADA (CORNWALL PLANT) CORNWALL REPORT DATE: 10 DEC 91
CONTROL POINT: 0300, PROCESS EFFLUENT 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2624	3735	1070	1341	1737	2763	1392	1150	1069	1164	847	1106	1667	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	1364			1877			751						1331	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.18	0.29	0.13	0.14	13.7	0.12	0.05	0.046	0.04				1.63	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	511	520	103	123	147	326	168	135	202	156	121	120	219	
KG /DAY (RSP)	GUIDELINE														

000190-00-0(0) COURTAULDS FIBRES CANADA (CORNWALL PLANT) CORNWALL REPORT DATE: 11 OCT 91

S U M M A R Y FOR PROCESS EFFLUENT DISCHARGED INTO: 02/005/ ST. LAWRENCE R.

INCLUDES CONTROL POINTS 0100 0300 - 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8275	8106	6073	7016	7536	7866	6027	5181	4652	3551	4389	5140	6151	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	2240			5896			544						2893	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.51	1.12	0.926	0.62	1.9	0.545	0.442	0.386	0.311				0.755	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	853	1975	393	432	555	1011	537	540	645	305	403	350	889	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC	231	341	293	289	215	313	229	234	208		107	184	294	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

000190-00-0(0) COURTAULDS FIBRES CANADA (CORNWALL PLANT) CORNWALL REPORT DATE: 11 OCT 91
CONTROL POINT: 0100, PROCESS EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5647	4371	4986	5674	5799	5379	4635	4030	3583	2386	3542	4034	4506	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	CALC	2240			4396			3.76						2213	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.385	0.885	0.865	0.51	0.831	0.476	0.401	0.341	0.266				0.551	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	532	227	307	321	407	694	347	408	442	145	282	231	362	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC	227	278	291	287	209	309	222	233	206		107	184	232	
KG /DAY (ZNUT)	GUIDELINE														

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000190-00-0(0) COURTAULDS FIBRES CANADA (CORNWALL PLANT) CORNWALL REPORT DATE: 11 OCT 91
CONTROL POINT: 0300, PROCESS EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2628	3735	1087	1342	1738	2487	1393	1151	1070	1165	847	1106	1646	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL				1500			540						1020	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.127	0.235	0.0619	0.11	1.1	0.0684	0.0409	0.0458	0.0443				0.204	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	322	1747	86.3	111	148	317	191	132	204	161	121	119	305	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC	3.72	63.1	1.59	2.03	5.23	3.83	7.26	1.34	2.10				10	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Cyanamid Canada Inc. IMISNO.:0001550003
& PLANT LOCATION: Niagara Falls Plant, Niagara Falls

MOE REGION: West Central DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals SIC CODE: 3782

RECEIVING WATERBODY: DIRECT: Niagara River and Queenston-Chippawa Hydro Power Canal to Niagara River
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Calcium carbide and calcium cyanide are produced by electric arc furnaces.

EFFLUENT CHARACTERISTICS: Cooling water from furnace operation. Contains Total Suspended Solids and phosphorus

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous through two outfalls.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Wastewater Discharges In Ontario.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring using "Gross" Loadings in 1989 and should not be compared to Net Data previously reported. The reported increase in RSP loadings does not imply a decrease in effluent quality.

The data for three of four trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Whitty Creek final effluent to have been not acutely lethal to test fish. The remaining sample when tested produced a 96 hour LC50 of > 100 % effluent. An audit sample tested by MOE was determined as non-lethal.

The data for nine of eleven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Hydro Canal effluent to have been not acutely lethal to test fish. The remaining samples when tested produced a 96 hour LC50 of > 100 % effluent. An audit sample tested by MOE was determined as non-lethal.

03/08/91

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92

S U M M A R Y INCLUDES CONTROL POINTS 0100 (0500 0600) 0200

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	34816	39404	34608	32763	34390	41840	39031	37869	36756	33303	35735	38492	36584	
M3 /DAY (FTFLAV)	GUIDELINE														
PH DAILY	CALC	8.26	8.27	8.23	8.24	8.36	8.34	8.31	8.45	8.25	8.33	8.54	8.56	8.34	
(PHAVG)	GUIDELINE														0
CYANIDE AVAIL	CALC	1.4	5.26	2.36	2.25	1.46	0.596	0.339	0.403	0.427	0.471	0.349	1.14	1.37	
KG /DAY (CCNAUR)	GUIDELINE	70.9	68.9	72.1	66.6	72	82.2	76.2	74.9	73.7	66.5	69.3	75	72.4	0
PHOSPHOR UNF.TOT.	CALC	0.448	1.96	2.31	1.14	1.26	1.24	0.513	0.48	0.738	1.08	0.447	3.79	1.28	
KG /DAY (PPUT)	GUIDELINE	34.4	33.4	45.3	33.8	37.4	41.2	39.5	36.8	36	32.9	34.3	37.9	36.9	0
RESIDUE PARTIC.	CALC	281	383	286	777	555	563	598	487	403	376	650	946	525	
KG /DAY (RSP)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

AS OF MAY 1990, THE EFFLUENT FROM CONTROL POINT 0100, IS REPORTED AS THE COMBINED EFFLUENT FROM CONTROL POINTS 0500 AND 0600.

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, WHITTY CK. DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE	17297	22332	19228	18185									25681	
PH DAILY (PHAVG)	CALC GUIDELINE	8.42	8.35	8.35	8.37									11.16	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC GUIDELINE	1.14	3.44	1.89	1.97									2.11	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE	0.223	1.47	1.48	0.734									0.977	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE	71.3	264	139	557									258	

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000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
S U M M A R Y INCLUDES CONTROL POINTS 0500 0600
1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE					16025	15135	17831	22342	21649	18519	16858	18825	18398	
PH DAILY (PHAVG)	CALC GUIDELINE					8.61	8.6	8.59	8.77	8.67	8.79	8.92	8.79	8.72	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC GUIDELINE					1.07	0.463	0.256	0.361	0.391	0.419	0.291	0.817	0.508	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE					0.445	0.524	0.237	0.279	0.286	0.236	0.216	1.83	0.507	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE					323	152	259	327	279	240	298	457	292	

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AS OF MAY 1990, THE EFFLUENT FROM CONTROL POINT 0100, IS REPORTED AS THE COMBINED EFFLUENT FROM CONTROL POINTS 0500 AND 0600.

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0500, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE					15042	14309	16847	21179	20621	17760	16167	17781	17463	
PH DAILY (PHAVG)	CALC GUIDELINE					8.29	8.17	8.22	8.48	8.41	8.46	8.58	8.24	8.36	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC GUIDELINE					0.899	0.387	0.195	0.252	0.336	0.34	0.268	0.697	0.422	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE					0.411	0.496	0.224	0.262	0.259	0.227	0.207	1.74	0.478	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE					290	133	240	304	267	228	282	408	269	

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000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0600, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE					983	826	984	1163	1028	759	691	1044	935	
PH DAILY (PHAVG)	CALC GUIDELINE					8.93	9.03	8.96	9.06	8.92	9.12	9.25	9.33	9.08	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC GUIDELINE					0.169	0.076	0.061	0.109	0.055	0.079	0.023	0.12	0.0865	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE					0.034	0.028	0.013	0.017	0.027	0.009	0.009	0.093	0.0287	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE					32.5	18.9	18.9	22.7	11.8	12	15.8	48.5	22.6	

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AS OF MAY 1990, THE EFFLUENT FROM CONTROL POINT 0100, IS REPORTED AS THE COMBINED EFFLUENT FROM CONTROL POINTS 0500 AND 0600.

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0200, EFFLUENT TO HYDRO CANAL 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL	17519	17072	15380	14578	18365	26705	21200	15527	15107	14784	18877	19667	17898	
	GUIDELINE														
PH DAILY (PHAVG)	CALC	8.09	8.18	8.11	8.11	8.1	8.07	8.03	8.13	7.83	7.86	8.17	8.34	8.08	
	GUIDELINE														
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC	0.264	1.82	0.465	0.275	0.392	0.133	0.083	0.042	0.036	0.052	0.058	0.326	0.329	
	GUIDELINE														
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC	0.225	0.494	0.83	0.41	0.812	0.717	0.276	0.201	0.452	0.845	0.231	1.96	0.621	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	210	119	147	220	232	411	339	160	124	136	352	489	245	
	GUIDELINE														

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Cyanamid Canada Inc. Welland Plant, Niagara Falls

IMISNO.:0001550102

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: Thompson's Creek to Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITIES: Manufactures Inorganic nitrogen and phosphorus products (ammonia, dicyandiamid)

EFFLUENT CHARACTERISTICS: Process and cooling waters. Results presented are compliance monitoring.

EFFLUENT TREATMENT: Wastewater discharges to product recovery system, settling lagoons and then to open outfall.

DISCHARGE TYPE: Continuous through an open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): issued in June 1988. Certificate Limits:

EFFLUENT PARAMETERS	NON-COMPLIANCE CONCENTRATION LIMITS
Total Ammonium Nitrogen (NH3 + NH4-N)	10 mg/L (Normalized, Monthly)
pH	5.5-7.5 (Daily)
Toxicity (90-Hours LC50)	100% effluent concentration (by volume)
BOD5	15 mg/L greater than the concentration in the plant's intake (Monthly)
Suspended Solids	10 mg/L greater than the concentration in the plant's intake (Monthly)
Total Phosphorus (as P)	1 mg/L (Monthly)
Total Chromium (as Cr)	0.6 mg/L (Monthly)
Total Nickel (as Ni)	0.2 mg/L (Monthly)
Total Cyanide (as CN)	0.1 mg/L (Monthly)
Nitrate Nitrogen (NO3-N)	50 mg/L (Monthly)
Oil and Grease	15 mg/L (No visible film, Monthly)

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Cyanamid Canada Inc. ...continued
& PLANT LOCATION: Welland Plant, Niagara Falls

IMISNO.:0001550102

EXCEEDANCES: Phosphorus (2), Ammonia (9): Company also exceeded daily requirements of its Certificate of Approval for pH (41).

REMEDIAL ACTIONS: Preliminary investigation in 1990 identified that the groundwater infiltration into the discharge contained elevated pH and ammonia during storm events. The primary source was identified as the groundwater in the vicinity of the nitrate plant. This facility ceased operation in 1991. The company installed groundwater monitoring wells to identify the source of contamination, subsequent monitoring commencing in 1991 confirmed this area as a source. Investigation and monitoring are continuing to further define the source of contamination and prepare the Remedial Action Plan. It is anticipated the Remedial Action Plan will be submitted in mid 1992.

COMMENTS: The data for seven of ten trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Millers Creek effluent to have been not acutely lethal to test fish. However, one sample was determined as acutely lethal. The 96 hour LC50 was 88.5 % effluent. The remaining two samples when tested produced a 96 hour LC50 of > 100 % effluent. One of two audit samples was also acutely lethal with a 96 hour LC50 of 88.5 % effluent. The other audit sample was non-lethal.

04/16/92

000155-01-0(2) CYANAMID CANADA INC. (WELLAND PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0200, MILLER'S CK. DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	41232	43861	36197	42095	27813	17369	16145	16428	16930	21302	18028	58291	29641	
M3 /DAY (FTFLOW)	GUIDELINE														
PH DAILY	CALC	6.34	6.17	6.49	6.43	7.26	7.32	6.85	6.85	6.72	6.94	7.01	6.99	6.78	
(PHAVG)	REQUIREMENT														S/C
CHROMIUM UNF.TOT.	CALC	0.201	0.157	0.127	0.194	0.07	0.047	0.058	0.036	0.071	0.048	0.046		0.0959	
KG /DAY (CRUT)	REQUIREMENT	33.5	26.2	25.3	27.7	34.8	15.7	19.5	17.8	17.7	24.1	15.4		23	0
NH3-N TOTAL	CALC	140	339	272	343	167	135	78.7	166	163	189	163	289	204	
KG /DAY (NNHTFR)	REQUIREMENT														
NO2+NO3N FIL.REAC	CALC	140	584	309	330	240	125	116	106	97.1	223	118	594	249	
KG /DAY (NNOTFR)	REQUIREMENT														
K'DAHL N TOTAL	CALC	505	1357	920	1279	745	635	303	462	449	408	504	987	713	
KG /DAY (NNTKUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	42.4	36.5	23.5	28.9	21.5	12.2	16.8	10.9	10.4	15.9	17.2	42.1	23.2	
KG /DAY (PPUT)	REQUIREMENT	41.2	43.9	36.2	42.1	27.8	17.4	16.1	16.4	16.9	21.3	18	58.3	29.6	2
RESIDUE PARTIC.	CALC	365	2399	1040	1800	696	213	413	216	183	207	125	5511	1097	
KG /DAY (RSP)	REQUIREMENT														

NOTE: FOR PH-LIMITS SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 94.3 % IN 1990.

RSF AND RST NOT MONITORED UNDER MISA MONITORING REGULATION.

000155-01-0(2) CYANAMID CANADA INC. (WELLAND PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0200, MILLER'S CK. DISCHARGE 1990 NET DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	558	473	388	456	241	177	130	249	233	275	203	521	325	
KG /DAY (NNHTFR)	REQUIREMENT	413	439	359	422	280	173	162	165	166	219	178	581	296	9
RESIDUE PARTIC.	ACTUAL	248	0	0	0	0	0	0	0	0	0	89	812	95.8	
KG /DAY (RSP)	REQUIREMENT	620	659	539	633	420	260	243	248	248	329	268	871	445	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 62.5 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Deak Resources Corporation (previously reported as Golden Shield Resources) Kerr Mine/Mill, Virginiatown — IMISNO.: 0001350008

MOE REGION: Northeast — DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining — SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Larder Lake to Larder River; INDIRECT: Ottawa River

DESCRIPTION OF ACTIVITY: Gold mining and recovery using a cyanide circuit.

EFFLUENT CHARACTERISTICS: Contains arsenic, cyanide, copper, iron, nickel, dissolved solids and zinc.

EFFLUENT TREATMENT: Tailings, two Barren Ponds.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (October 31, 1988) A conditional Certificate of Approval issued in 1984 (Condition 4) allowed the company until October 31, 1988 to meet the Ministry effluent requirements.

EXCEEDANCES: Arsenic (1), Cyanide (1), Iron (5), Nickel (1), Suspended Solids (RSP) (1)

REMEDIAL ACTIONS: Company has applied for Certificate of Approval to upgrade facilities in 1991.

COMMENTS: The company went into receivership and the mine and mill were placed in a care and maintenance mode in 1989. In 1990, new owners restarted mine and mill operations.

12/16/91

000135-00-0(8) DEAK RESOURCES CORPORATION - KERR MINE/MILL VIRGINIATOWN REPORT DATE: 3 DEC 91

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL			0.005	0.199	0.005	0.273	0.04	0.259	0.517	0.317	0.31	0.361	0.229	
MG/L (ASUT)	GUIDELINE			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
CYANIDE AVAIL	ACTUAL			0.03	0.209	0.026	0.472	0.25	0.129	0.557	0.41	0.587	5.65	0.83	
MG/L (CCNAUR)	GUIDELINE			2	2	2	2	2	2	2	2	2	2	2	1
COPPER UNF.TOT.	ACTUAL			0.05	0.06	0.05	0.65	0.8	0.22	0.16	0.218	0.157	0.345	0.271	
MG/L AS CU	GUIDELINE			1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL			0.42	1.2	0.42	1.41	1.25	1.03	0.208	0.64	1.37	1.143	0.909	
MG/L AS FE	GUIDELINE			1	1	1	1	1	1	1	1	1	1	1	5
NICKEL UNF.TOT.	ACTUAL			0.31	0.25	0.31	0.58	1.33	0.54	0.566	0.662	0.535	0.645	0.573	
MG/L AS NI	GUIDELINE			1	1	1	1	1	1	1	1	1	1	1	1
PH	ACTUAL			6.81	6.98	6.81	7.82	7.4	7.81	7.98	7.75	7.98	8.64	7.60	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL			9	5	9	12	9	5	5	8	22	13	9.7	
MG/L (RSP)	GUIDELINE			15	15	15	15	15	15	15	15	15	15	15	1
ZINC UNF.TOT.	ACTUAL			0.05	0.15	0.05	0.35	0.16	0.54	0.02	0.042	0.078	0.262	0.170	
MG/L AS ZN	GUIDELINE			1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 80, FOR A TOTAL COMPLIANCE RECORD OF 89% IN 1990.

THIS COMPANY IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Denison Mines Ltd.
& PLANT LOCATION: Stanrock, Elliot Lake

IMIS NO.: 0001680206

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 60 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Mine is currently closed.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff and mine water is treated with lime slurry and barium chloride;the precipitates are settled in treatment ponds.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for one of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to had been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 80.6 %. The remaining samples resulted in 96 hour LC50s > 100 % effluent. An audit sample tested by the MOE was determined non-lethal.

12/16/91

000168-02-0(6) DENISON MINES LTD., STANROCK ELLIOT LAKE REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3542	3110	13565	6566	2074	2074	1037	1037	605	6566	8726	1728	4219	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.9	8	8.1	8.5	7.9	7.6	6.9	7.6	7.3	6.8	7.6	8.1	7.78	
(PH)	GUIDELINE														0
RADIUM 226 FIL.	ACTUAL			0.09				0.11	0.1	0.11	0.09	0.1	0.12	0.10	
BQ/L (RA226F)	GUIDELINE			0.37				0.37	0.37	0.37	0.37	0.37	0.37	0.37	0
RESIDUE PARTIC.	ACTUAL	10.6	15.6	13.6	6.6	2.1	10.4	2.1	1	1.2	19.7	52.4	3.5	11.6	
KG /DAY (RSP)	GUIDELINE	53.1	46.7	203	98.5	31.1	31.1	15.5	15.5	9.07	98.5	131	25.9	63.2	0

NOTE: PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 31, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000168-02-0(6) DENISON MINES LTD., STANROCK ELLIOT LAKE REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		3542	2246	6599	1517	92	1382	1024	260	1515	4061	6048	2571	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.1	8.9	9.3	8.1	8.3	6.9	7.2	7.4	7.1	6.8	9	7.83	
(PH)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.00708	0.00449	0.0396	0.00303	0.000184	0.00415	0.00205	0.00052	0.00303	0.0244	0.248	0.0306	
KG /DAY (CUUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		0.0319	0.0202	0.422	0.0137	0.000828	0.018	0.0205	0.00234	0.0136	0.0569	0.0544	0.0595	
KG /DAY (NIUT)	GUIDELINE														
LEAD UNF.TOT.	CALC		0.0354	0.0225	0.066	0.0152	0.00092	0.0138	0.0102	0.0026	0.0152	0.0406	0.0605	0.0257	
KG /DAY (PBUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		21.3	11.2	39.6	12.1	0.368	5.53	4.10	1.56	6.06	16.2	24.2	12.9	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.085	0.018	0.0528	0.0152	0.00046	0.0193	0.0041	0.012	0.0348	0.0447	0.0242	0.0282	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ABOVE.

RA226F AND RA226T NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Denison Mines Ltd. IMIS NO.: 0001680008
& PLANT LOCATION: Stollery, Elliot Lake

MOE REGION: Northeast DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Stollery Lake to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts, ammonia compounds and radioactive material.

EFFLUENT TREATMENT: Lagoon - Two stage treatment consisting of lime addition to the tailings to effect pH control and metals precipitation in tailings area, followed by barium chloride for Ra226 precipitation and settling in a polishing pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for one of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated both final discharge effluents to had been not acutely lethal to test fish. The other samples, when tested, produced 96 hour LC50s of >100 % effluent. An audit sample tested by MOE was determined as non-lethal to test fish.

12/16/91

000168-00-0(8) DENISON MINES LTD., STOLLERY ELLIOT LAKE REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	27562	22896	34816	34560	34474	30672	25229	24365	27562	31795	31622	27907	29455	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.9	7.2	7.4	7.7	8	7	7.2	7.4	7.2	7.1	6.8	7.37	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	165	92	244	207	345	460	151	146	165	223	158	140	208	
KG /DAY (RSP)	GUIDELINE	413	343	522	518	517	460	378	365	413	477	474	419	442	0

NOTE: PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000168-00-0(8) DENISON MINES LTD., STOLLERY ELLIOT LAKE REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		29469	33430	34421	32320	31385	24618	24471	27187	30470	30434	28246	29677	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.99	7.18	7.38	7.88	7.98	7.04	7.22	7.41	7.20	7.14	6.81	7.38	
(PH)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.377	0.058	0.21	0.063	0.157	0.064	0.046	0.052	0.069	0.115	1.381	0.236	
KG /DAY (CUUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		2.52	2.56	2.52	1.57	0.44	0.307	0.744	0.835	0.527	0.921	0.921	1.26	
KG /DAY (NIUT)	GUIDELINE														
LEAD UNF.TOT.	CALC		0.315	0.288	0.35	0.315	0.315	0.128	0.232	0.261	0.229	0.288	0.288	0.273	
KG /DAY (PBUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		245	353	249	364	481	164	134	179	201	158	138	242	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC		3.02	3.74	0.595	1.2	0.535	0.141	0.558	0.235	0.595	1.21	1.44	1.21	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ABOVE.

RA226F AND RA226T NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Denison Mines Ltd.
& PLANT LOCATION: Williams, Elliot Lake

IMIS NO.: 0001680107

MOE REGION: Northeast

DISTRICT: Sault Ste.Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Williams Lake to Beaver Pond to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Idle tailings area.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff is treated with caustic and barium chloride, precipitate is settled in Beaver Pond area and the effluent discharges to Serpent River.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

12/16/91

000168-01-0(7) DENISON MINES LTD - WILLIAMS LAKE ELLIOT LAKE REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	173	173	3283	1642	2246	518	482	164	86.4	1469	2419	605	1105	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.2	7.8	7.7	7.8	7.2	7.1	7.3	7.4	7.4	7.4	7.4	7.42	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.003			0.03									0.017	
KG /DAY (CUUT)	GUIDELINE	S/C			S/C										S/C
NICKEL UNF.TOT.	ACTUAL	0.003			0.03									0.017	
KG /DAY (NIUT)	GUIDELINE	S/C			S/C										S/C
LEAD UNF.TOT.	ACTUAL	0.005			0.07									0.038	
KG /DAY (PBUT)	GUIDELINE	S/C			S/C										S/C
RADIUM 226 FIL.	ACTUAL	0.1	0.08	0.09	0.03	0.04	0.08	0.08	0.13	0.13	0.08	0.04	0.05	0.08	
BQ/L (RA226F)	GUIDELINE	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0
RESIDUE PARTIC.	ACTUAL	0.35	0.17	6.6	3.3	2.2	0.52	1.3	0.33	0.17	1.5	2.4	0.6	1.62	
KG /DAY (RSP)	GUIDELINE	2.59	2.59	49.2	24.6	33.7	7.78	7.23	2.46	1.3	22	36.3	9.07	16.6	0
ZINC UNF.TOT.	ACTUAL	0.003			0.03									0.017	
KG /DAY (ZNUT)	GUIDELINE	S/C			S/C										S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 44, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Dickenson Mines Ltd. IMISNO.: 0034480004
& PLANT LOCATION: Arthur W. White Mine, Township Golden-Balmertown

MOE REGION: Northwest DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters during critical late-winter, early summer period, for complete cyanide degradation.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-059-86-006, issued August 22, 1986, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and suspended solids.

EXCEEDANCES: Arsenic (11), Suspended Solids (RSP) (2)

REMEDIAL ACTIONS: final discharge point is shared with Campbell Mine which is undertaking a major process change to reduce arsenic and metal concentrations in the final effluent.

COMMENTS: The effluent discharge point is shared with Placer Dome Inc., Campbell Mine, thus the loadings and comments for the two are identical.

Four of nine trout bioassays conducted in 1990, indicated the Balmer Creek effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged 26.2 - 100 %. Four of the remaining samples were determined non-lethal and the other had a 96 hour LC50 of > 100 % effluent.

02/27/91

003448-00-0(4) DICKENSON MINES LIMITED, ARTHUR W. WHITE — BALMERTON — REPORT DATE: 6 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	7910	5890	11230	6280	0	56160	83850	80200	75600	43530	13970	6180	35527	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	1.298	0.843	1.275	1.156		0.953	0.919	0.958	0.958	0.975	0.901	0.958	1.018	
MG/L (ASUT)	REQUIREMENT	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	11
CYANIDE AVAIL	ACTUAL	0.28	0.17	0.34	0.41		0.5	0.14	0.25	0.09	0.19	0.39	0.39	0.286	
MG/L (CCNAUR)	REQUIREMENT	2	2	2	2		2	2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL	0.52	0.455	0.578	0.585		1.042	0.582	0.4	0.352	0.358	0.427	0.505	0.528	
MG/L (CUUT)	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0.623	0.565	0.646	0.583		0.634	0.526	0.45	0.484	0.505	0.578	0.623	0.565	
MG/L (NIUT)	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0
LEAD UNF. TOT.	ACTUAL	0.019	0.029	0.03	0.029		0.027	0.029	0.03	0.03	0.03	0.032	0.03	0.029	
MG/L (PBUT)	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL	6	7	6	11		10	4	4	6	17	14	16	9.18	
MG/L (RSP)	REQUIREMENT	15	15	15	15		15	15	15	15	15	15	15	15	2
ZINC UNF.TOT.	ACTUAL	0.113	0.134	0.163	0.126		0.192	0.112	0.068	0.074	0.11	0.108	0.123	0.120	
MG/L (ZNUT)	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 OUT OF 77, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1990.

CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE WASTEWATER DISCHARGE SUMMARY PAGE.

003448-00-0(4) DICKENSON MINES LIMITED, ARTHUR W. WHITE BALMERTON REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		5795	11765	8455		75380	77960	74587	76325	44245	13504	6106	39412	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	CALC		8.68	17.5	15		77.7	70	69.4	74.6	42.3	12.7	5.97	39.4	
KG /DAY (ASUT)	REQUIREMENT														
CYANIDE AVAIL	CALC		1.35	3.97	3.71		32.1	6.96	2.57	4.09	6.34	4.45	0.959	6.65	
KG /DAY (CCNAUR)	REQUIREMENT														
COPPER UNF.TOT.	CALC		2.69	7.45	6.06		75.4	40.1	27.7	25.2	15.6	5.8	2.88	20.9	
KG /DAY (CUUT)	REQUIREMENT														
NICKEL UNF.TOT.	CALC		3.48	7.95	6.46		47.8	39.2	33	35	21.2	7.47	3.66	20.5	
KG /DAY (NIUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC		54.2	69.8	73.1		639	404	377	400	378	132	70.1	260	
KG /DAY (RSP)	REQUIREMENT														
ZINC UNF.TOT.	CALC		0.573	1.57	1.38		15.3	9.34	6.52	6.73	4.27	1.57	0.762	4.81	
KG /DAY (ZNUT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

NO DISCHARGE DURING THE MONTH OF MAY 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Dofasco Inc. IMISNO.:0001460005
& PLANT LOCATION: Hamilton

MOE REGION: West Central DISTRICT: Hamilton

INDUSTRIAL SECTOR: Iron and Steel SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron & steel production including 246 Coke ovens, 4 Blast Furnaces, 2 B.O.F. shops and numerous rolling mills.

EFFLUENT CHARACTERISTICS: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery, ion exchange and biological treatment.

DISCHARGE TYPE: Continuous through four shore outfalls.

COMPANY LIMITS SET BY: MOE GUIDELINES: compliance is on total plant discharge.

EXCEEDANCES: Suspended Solids (RSP) (8), Cyanide (1), Phenols (8)

REMEDIAL ACTIONS: See below.

COMMENTS: Three of the eight suspended solid exceedances, five of the eight phenolic exceedances, and the cyanide exceedance caused by change in reporting format from IMIS NET data to MISA GROSS data. Remaining exceedances caused by general unrelated incidents including run off from a snow dump and upsets in the treatment system. Modifications to the wastewater treatment system were completed in 1991 acheiving compliance.

The data for ten trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the East Boat Slip Sewer effluent to have been not acutely lethal to test fish. An audit sample tested by MOE was also determined as non-lethal.

The data for nine of ten trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Ottawa Street Sewer effluent to have been not acutely lethal to test fish. The remaining sample, when tested, produced a 96 hour LC50 of >100 % effluent. An audit sample tested by MOE was also determined as non-lethal.

The data for three of four trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Boiler House Sewer #1 effluent to have been not acutely lethal to test fish. The remaining sample, when tested, produced a 96 hour LC50 of >100 % effluent. Two audit samples tested by MOE were also determined as non-lethal.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Dofasco Inc. ...continued
& PLANT LOCATION: Hamilton

IMIS NO.: 0001460005

The data for four of ten trout bioassays submitted to the MOE under the MISA monitoring regulation indicated the West Bay Front Sewer to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 51.0 - 82.7 % effluent. Of the remaining samples, one was determined to have a 96 hour LC50 > 100 % effluent and five were non-lethal to test fish. An audit sample tested by MOE was also determined non-lethal.

01/14/92

000146-00-0(5) . DOFASCO INC HAMILTON REPORT DATE: 23 JAN 92

S U M M A R Y FOR EMIS. TYPE: 31 COMBINED EFFLUENT DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200 0300 0400

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	731169	730559	688627	575926	554252	560641	580631	794677	790034	787469	828226	846673	705740	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.94	8.01	8.08	8.14	8.23	10.9	8.37	8.41	8.33	8.09	8.21	8.14	8.40	
(PH)	GUIDELINE														0
CYANIDE AVAIL	ACTUAL	69.8	120	81.2	85.3	141	162	79.2	101	99.5	105	64.7	105	101	
KG /DAY (CCNAUR)	GUIDELINE	157	157	157	157	157	157	157	157	157	157	157	157	157	1
CHROMIUM UNF.TOT.	ACTUAL	12.5	21.5	13.2	7.55	6.44	48.7	7.5	8.57	8.64	11.4	14	11.7	14.3	
KG /DAY (CRUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787	787	0
IRON UNF.TOT.	ACTUAL	3303	2654	2087	1074	644	625	493	588	905	1685	2228	1022	1442	
KG /DAY (FEUT)	GUIDELINE	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	0
PHENOLS UNF-REAC	ACTUAL	5.12	5.63	20	20.9	21.5	17	37.6	81.7	41.6	16	21.7	13.1	25.1	
KG /DAY (PHNOL)	GUIDELINE	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	8
PHOSPHOR UNF.TOT.	ACTUAL	71.9	69.5	53.9	38.6	41.7	25	27.7	41.2	39.3	66.1	54.2	66.1	50	
KG /DAY (PPUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787	787	0
RESIDUE PARTIC.	ACTUAL	15222	34239	16692	10227	8776	8065	12371	13160	31941	17785	26633	9273	17032	
KG /DAY (RSP)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	8
SOLVENT EXTRACT.	ACTUAL	865	1558	956	793	661	677	653	982	987	1036	1320	873	947	
KG /DAY (SOLEXT)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	0
ZINC UNF.TOT.	ACTUAL	143	175	162	48.2	17.9	11.3	16.7	22.5	24.8	48	43.1	40.4	62.7	
KG /DAY (ZNUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787	787	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 108, FOR A TOTAL COMPLIANCE RECORD OF 84.3 % IN 1990.

000146-00-0(5) DOFASCO INC — HAMILTON — REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, E. BOAT SLIP SEWER — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	85693	88981	68611	66174	61574	57602	60480	66182	67064	69420	77360	79301	70704	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.04	7.97	7.97	7.94	7.98	7.98	8.17	8.22	8.15	7.8	7.86	7.71	7.98	
(PH)	GUIDELINE														
CYANIDE AVAIL	CALC	3.8	3.67	3.9	4.67	4.61	3.79	7	10	10.3	12.5	16.9	31.9	9.42	
KG /DAY (CCNAUR)	GUIDELINE														
CHROMIUM UNF.TOT.	CALC	2.63	2.98	2.33	1.55	1.24	1.75	1.45	1.34	1.68	1.69	3.05	3.31	2.08	
KG /DAY (CRUT)	GUIDELINE														
IRON UNF.TOT.	CALC	41.8	39.4	51.9	22.7	11.8	17.1	12.8	28.1	33.3	32.2	26.8	22.2	28.3	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.405	0.242	1.41	2.78	2.16	1.2	1.94	5.34	1.73	0.656	1.7	1.16	1.73	
KG /DAY (PHNOL)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	7.61	5.79	3.84	3.64	4.68	3.82	3.17	3.5	3.51	5.95	5.4	6.76	4.81	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	674	883	1040	709	567	535	671	742	845	732	521	441	697	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	125	185	106	86	71.5	72.4	82.5	80.2	82.5	76.9	137	78.6	98.6	
KG /DAY (SOLEXT)	GUIDELINE														
ZINC UNF.TOT.	CALC	3.92	2.59	6.15	1.42	0.618	0.887	0.729	2.56	1.89	1.67	0.964	1.42	2.07	
KG /DAY (ZNUT)	GUIDELINE														

000146-00-0(5) DOFASCO INC
CONTROL POINT: 0200, OTTAWA ST. SEWER
1990 MISA DATA HAMILTON
REPORT DATE: 23 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	181673	182887	150519	123046	130226	135986	132379	168749	171881	153743	137442	128855	149782	
	GUIDELINE														
PH (PH)	ACTUAL	7.89	7.92	7.93	7.96	8.01	8.03	8.2	8.21	8.09	7.93	7.87	7.87	7.99	
	GUIDELINE														
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC	2.19	2.15	3.2	3.34	1.81	1.69	1.27	0.9	1.21	0.94	1.58	4.69	2.08	
	GUIDELINE														
CHROMIUM UNF.TOT. KG /DAY (CRUT)	CALC	3.02	7.22	3.84	2.16	1.56	4.46	2.19	1.5	1.48	2.72	4.82	2.01	3.08	
	GUIDELINE														
IRON UNF.TOT. KG /DAY (FEUT)	CALC	728	1073	511	326	263	177	179	250	251	622	1582	497	538	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	0.536	0.59	3.64	3.5	3.2	2.66	4.38	14.8	3.23	1.1	4.34	1.53	3.63	
	GUIDELINE														
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC	12.6	18.1	13.7	6.64	6.7	7.69	6.75	6.14	6.9	7.73	14.2	14.6	10.1	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	4814	19673	3543	2560	1624	1254	1453	2025	2581	3144	9918	2386	4581	
	GUIDELINE														
SOLVENT EXTRACT. KG /DAY (SOLEXT)	CALC	258	703	275	211	185	196	152	267	269	274	570	156	293	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC	11.9	10.4	13.6	4.31	3.41	1.45	1.54	1.89	1.48	5.91	19.1	5.44	6.7	
	GUIDELINE														

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000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 23 JAN 92

CONTROL POINT: 0300, BOILER HOUSE SEWER 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	56096	73905	81438	44633	38982	37335	39586	250157	218301	254704	302174	335318	144386	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.96	8.09	8.13	8.02	8.08	7.97	8.24	8.2	8.23	7.83	7.96	7.88	8.05	
(PH)	GUIDELINE														
CYANIDE AVAIL	CALC	0.864	1.02	1.16	0.527	0.425	0.794	0.649	3.9	6.13	4.7	8.25	27.6	4.67	
KG /DAY (CCNAUR)	GUIDELINE														
CHROMIUM UNF.TOT.	CALC	0.487	1.64	1.22	0.446	0.39	1.05	0.396	2.5	2.18	2.55	3.02	3.35	1.6	
KG /DAY (CRUT)	GUIDELINE														
IRON UNF.TOT.	CALC	23.4	34	58	35.4	9.57	19.9	8.3	66	61.7	110	148	104	56.5	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.2	0.231	1.98	1.35	1.01	0.79	1.01	14.4	6.43	1.98	6.66	3.81	3.32	
KG /DAY (PHNOL)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	3.79	5.03	5.25	2.4	3.02	1.99	2.04	11.2	10.7	13.6	16	23	8.17	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	345	607	1040	395	284	245	352	2488	2505	2017	2224	2386	1241	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	91	194	113	49.7	39	41.2	39.6	250	237	303	302	335	166	
KG /DAY (SOLEXT)	GUIDELINE														
ZINC UNF.TOT.	CALC	3.61	3.52	7.27	1.98	0.877	0.747	1.57	2.5	5.56	10.8	7.52	12.3	4.85	
KG /DAY (ZNUT)	GUIDELINE														

000146-00-0(5) DOFASCO INC — HAMILTON — REPORT DATE: 23 JAN 92

CONTROL POINT: 0400, W. BAY FRONT SEWER — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	407707	384786	388059	342073	323470	329718	348186	309589	332788	309602	311250	303199	340869	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.87	8.07	8.27	8.62	8.84	8.69	8.87	8.99	8.83	8.81	9.16	9.08	8.68	
(PH)	GUIDELINE														
CYANIDE AVAIL	CALC	62.9	113	72.9	76.8	134	156	70.3	85.9	81.9	86.8	38	40.9	85	
KG /DAY (CCNAUR)	GUIDELINE														
CHROMIUM UNF.TOT.	CALC	6.34	9.63	5.84	3.39	3.25	41.4	3.46	3.23	3.3	4.41	3.11	3.03	7.53	
KG /DAY (CRUT)	GUIDELINE														
IRON UNF.TOT.	CALC	2510	1508	1466	690	360	411	293	244	559	921	471	399	819	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	CALC	3.98	4.57	13	13.3	15.1	12	30.3	47.2	30.2	12.3	8.96	6.61	16.5	
KG /DAY (PHNOL)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	47.9	40.6	31.1	25.9	27.3	11.5	15.7	20.4	18.2	38.8	18.6	21.7	26.5	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	9389	13076	11069	6563	6301	6031	9895	7905	26010	11892	13970	4060	10513	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	391	476	462	446	365	367	379	385	398	382	311	303	389	
KG /DAY (SOLEXT)	GUIDELINE														
ZINC UNF.TOT.	CALC	124	158	135	40.5	13	8.19	12.9	15.5	15.9	29.6	15.5	21.2	49.1	
KG /DAY (ZNUT)	GUIDELINE														

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Dofasco Ltd. IMISNO.: 0001400001
& PLANT LOCATION: Adams Mine, Kirkland Lake

MOE REGION: Northeast DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Misema River
INDIRECT: Blanche River

DESCRIPTION OF ACTIVITY: Mining and concentrating iron ore.

EFFLUENT CHARACTERISTICS: Contains iron, solids, nitrate, turbidity.

EFFLUENT TREATMENT: Tailings pond to settle solids and allow time for natural degradation.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Iron (4), Suspended Solids (RSP) (1)

REMEDIAL ACTIONS:

COMMENTS: The company ceased its mine and milling operation on March 1, 1990. The mine is presently being decommissioned in accordance with plans as accepted by an interministrial committee. Water from precipitation continues to be discharged from the final discharge point.

12/16/91

000140-00-0(1) DOFASCO INC. - ADAMS MINE — KIRKLAND LAKE — REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, — 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON UNF.TOT. MG/L AS FE	ACTUAL	0.21	1.18	1.2	1.2	1.2	0.14	0.67						0.829	
	GUIDELINE	1	1	1	1	1	1	1						1	4
NO2+NO3N UNF.REAC MG/L AS N (NNOTUR)	ACTUAL	0.25	12.2	0.5	0.05	0	0	0						3.25	
	GUIDELINE														
PH (PH)	ACTUAL	7.1	7.32	6.95	6.95	6.95	7.59	6.89						7.11	
	GUIDELINE														0
RESIDUE FILTERED MG/L (RSF)	ACTUAL	420	15	292	292									254.75	
	GUIDELINE														
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	8		0.15		44.4	0	14						13.31	
	GUIDELINE	15		15		15	15	15						15	1
TURB'ITY MG/L (TURB)	ACTUAL	6.5		3.2										4.85	
	GUIDELINE														

NOTE: PH-LIMITS 5.5 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 19, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1990.

THIS MINE SHUTDOWN OPERATIONS MARCH 1990

THIS COMPANY NOT MONITORED UNDER MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Domtar Inc. (previously reported as Domtar Packaging) Containerboard Division, Trenton

IMISNO.: 0000140608

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Hardwood (maple, poplar) chips are made into pulp along with recycled fibre by a sodium carbonate cook; the pulp is formed into corrugating medium.

EFFLUENT CHARACTERISTICS: Low wastewater volume. High concentration of BOD5 and suspended solids.

EFFLUENT TREATMENT: Spent cooking liquor is stored separately for use as a binder/road dust suppressant (30 years of experience). No wastewater treatment facilities; approached historically through water recycling/wastewater reduction.

DISCHARGE TYPE: Continuous diffuser.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Under the current Federal Pulp and Paper Effluent Regulations, based on 1990 production, the average limits were 2,227 kg/day for suspended solids and 8,109 kg/day for BOD5. Provincial guideline for phosphorus level is 1.0 mg/L monthly average concentration.

EXCEEDANCES: Phosphorus (8), Biochemical Oxygen Demand (BOD5) (1)

REMEDIAL ACTIONS: During 1991 preliminary discussions with MOE to examine wastewater treatment alternatives, including evaporative process and further reductions in water usage.

COMMENTS: Company is part of MISA Pulp & Paper Sector.

The data for eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Mill Combined effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.9 - 43.2 %. An audit sample tested by MOE was also determined lethal with a 96 hour LC50 of 50.1 % effluent.

01/10/92

000014-06-0(8) DOMTAR INC., CONTAINERBOARD DIVISION TRENTON REPORT DATE:11 DEC 91

CONTROL POINT: 0100, COMBINED EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3825	3950	3865	3948	4169	4330	4345	3953	3708	4026	4165	4005	4024	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	4604	4390	4550	4390	5543	8080	6600	6450	7234	3649	3840	2730	5172	
KG /DAY (BOD5)	GUIDELINE	7691	7713	7711	7845	8054	7873	8147	8389	8933	8125	8797	8039	8109	1
CHEM. OX DEMAND	CALC	10138	10515	9650	10129	9719	11521	12107	12484	13791	13046	16149	14573	11985	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.54	5.94	4.88	4.57	4.05	2.64	4.88	3.88	6.07	4.28	6.94	6.11	4.57	
KG /DAY (PPUT)	GUIDELINE	3.82	3.95	3.87	3.95	4.17	4.33	4.35	3.95	3.71	4.03	4.16	4.01	4.02	8
RESIDUE PARTIC.	CALC	1050	644	516	373	485	439	388	398	519	765	1000	902	623	
KG /DAY (RSP)	GUIDELINE	2130	2120	2108	2172	2222	2211	2252	2275	2427	2208	2377	2219	2227	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 75 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Domtar Inc. Fine Papers, Cornwall

IMISNO.:0000140301

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine paper is made from logs and chips by the kraft pulping process and from purchased pulp.

EFFLUENT CHARACTERISTICS: Contains dissolved and suspended solids generated from the pulping of wood, the bleaching of pulp and the manufacture of paper.

EFFLUENT TREATMENT: Primary, using a clarifier.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): The control order was served in January 1990 and sets new requirements for the discharge of BOD5 and organochlorines (measured as AOX). Company also has to meet efficiency standard for suspended solids removal.

MOE OR FEDERAL GUIDELINES: Provincial requirement for phosphorus for direct discharges to the Great Lakes basin.

EXCEEDANCES: Biochemical Oxygen Demand (1)

REMEDIAL ACTIONS: Company has instituted internal control procedures and management practices to avoid exceedances of Control Order Limits.

COMMENTS: Company is part of MISA Pulp and Paper Sector.

The data for four of eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Total Mill effluent to have not been acutely lethal to test fish. However, of the remaining samples, three were determined to have been acutely lethal. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 65.7, 66.1 and 57.0 %. The other sample produced a 96 hour LC50 of > 100 % effluent. Two audit samples tested by MOE were determined non-lethal.

01/09/92

000014-03-0(1) DOMTAR INC., FINE PAPERS DIVISION CORNWALL REPORT DATE: 3 MAR 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	123560	122107	126323	127132	123490	130900	133843	140600	131431	128571	127790	122439	128182	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	25106	22409	21123	19832	19192	22484	19172	19670	20468	20417	19401	18868	20679	
KG /DAY (BOD5)	REQUIREMENT	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	23000	1
PHOSPHOR UNF.TOT.	CALC	26	47.2	35.4	67.5	36.9	39.3	39.6	32.9	41.4	66	50	37.8	43.3	
KG /DAY (PPUT)	GUIDELINE	121	118	118	135	123	131	132	143	138	132	125	126	129	0
RESIDUE PARTIC.	CALC	10938	10874	9842	10229	8232	9705	7936	11190	9375	10041	9174	8831	9697	
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97.2 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Domtar Inc. IMISNO.:0000140509
& PLANT LOCATION: Fine Papers, St. Catharines

MOE REGION: West Central DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 9.1 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are converted into paper products.

EFFLUENT CHARACTERISTICS: Suspended solids and Biochemical Oxygen Demand.

EFFLUENT TREATMENT: Extensive reuse of wastewater and primary clarifier (preceded by several Savealls and screens. Type of starch used was changed to reduce BOD load.

DISCHARGE TYPE: Continuous through an open outfall.

COMPANY LIMITS SET BY: MOE GUIDELINES: For 1990 target loads set by MOE Pulp and Paper Committee. Certificate of Approval issued in December 1990 with new discharge limits for BOD5 and suspended solids.

EXCEEDANCES: Biochemical Oxygen Demand (12)

REMEDIAL ACTIONS: The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loading. Summary data were reported in previous years as net data. The data reported in 1990 should not be compared to previous years.

Company was to divert high strength BOD5 wastewater to municipal sanitary sewer in December 1990, however, diversion did not occur as scheduled. Company attributed delay of sewer connection to a more stringent BOD5 Sewer Requirement by the Regional Municipality of Niagara. Further assessment and design of modifications required to meet the Sewer Use By-Law have been completed. Modifications and connection to the sanitary sewer will be completed in 1992. Compliance expected when diversion is implemented.

COMMENTS: The data for six of seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Clarifier Outlet effluent to have not been acutely lethal to test fish. However, the remaining sample was determined acutely lethal. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 87.7 %. An audit sample tested by MOE was determined non-lethal.

04/16/92

000014-05-0(9) DOMTAR INC., FINE PAPERS DIVISION ST. CATHARINES REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, CLARIFIER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10366	10758	10265	10962	9925	10935	10874	10046	9111	9869	9733	9345	10182	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	937	1194	774	1406	1883	894	831	962	798	1023	957	871	1044	
KG /DAY (BOD5)	GUIDELINE	520	543	517	537	500	537	540	487	437	490	497	470	506	12
PHOSPHOR UNF.TOT.	CALC	0.097	0.186	0.156	0.195	0.194	0.473	0.405	0.209	0.334	0.215	0.377	0.223	0.255	
KG /DAY (PPUT)	GUIDELINE	9.72	10.4	12	13.9	9.71	11.6	11.6	10.4	9.82	9.79	9.92	8.93	11	0
RESIDUE PARTIC.	CALC	250	565	331	296	709	309	162	324	189	319	492	571	376	
KG /DAY (RSP)	GUIDELINE														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 50 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Domtar Inc. IMISNO.:0000140202
& PLANT LOCATION: Packaging Division, Red Rock

MOE REGION: Northwest DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Nipigon Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood logs and chips are made into newsprint and linerboard by the ground wood and kraft processes. Kraft mill semi-bleaches some pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifier for high solids wastewater and spill pond. Foul condensates are steam stripped of odorous organic compounds.

DISCHARGE TYPE: All mill effluents are combined into one ditch for discharge to Lake Superior.

COMPANY LIMITS SET BY: CONTROL ORDER: Generic Kraft Mill Control Order took effect November 89. Daily maximum BOD limit is 45 tonnes; 30 day average limit is 26.2 tonnes per day. Daily maximum limit for Suspended Solids is 10.0 tonnes; 30 day average limit is 6.3 tonnes per day

EXCEEDANCES: Suspended Solids (RSP) (6)

REMEDIAL ACTIONS: Company has implemented a suspended solids reduction programme. Implementation has resulted in no exceedances of the 30 day average daily limit for the last six months of 1990.

COMMENTS: Four trout bioassays conducted in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged 25.3 - 67.0 %.

The data for seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Total Mill Outfall Stream effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 67.7 - 87.3 %. An audit sample tested by MOE was also determined lethal with a 96 hour LC50 of 56.3 % effluent.

03/13/91

000014-02-0(2) DOMTAR INC. - CONTAINERBOARD DIVISION RED ROCK REPORT DATE: 13 NOV 91

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	96755	92884	95084	97121	94912	95073	92538	104507	101821	100304	98939	87680	96468	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	13771	15896	17340	16536	15409	13296	11351	13938	13143	16106	17013	14180	14832	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	5400	5582	6393	6413	6680	5226	5387	5665	5093	5883	5693	4740	5680	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 75 % IN 1990.

THESE LOADING VALUES ARE DERIVED FROM CONTROL ORDER REQUIREMENT.
FOR COMPLIANCE WITH THE CONTROL ORDER SEE THE WASTE WATER DISCHARGE SUMMARY PAGE.

000014-02-0(2) DOMTAR INC. - CONTAINERBOARD DIVISION RED ROCK REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	96528	92311	94978	97100	94912	95070	96977	104512	103710	100194	98940	89080	97026	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	13500	17300	16600	17000	16100	13900	11900	14600	13700	16800	17300	15700	15367	
KG /DAY (BOD5)	REQUIREMENT														
RESIDUE PARTIC.	CALC	5570	5680	6550	6600	7220	5750	6090	6280	5470	6070	5890	5030	6017	
KG /DAY (RSP)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Domtar Inc. IMISNO.:0000141200
& PLANT LOCATION: Wood Preserving, Trenton

MOE REGION: Southeast DISTRICT: Kingston

INDUSTRIAL SECTOR: Wood Preserving SIC CODE: 2591

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Bay of Quinte, Lake Ontario

DESCRIPTION OF ACTIVITY: Wood preserving: Creosote and oil for hardwood railway ties and oil and pentachlorophenol for utility poles.

EFFLUENT CHARACTERISTICS: Contamination by oil and grease, suspended solids, chlorophenol, phenols and low levels of dioxins and furans.

EFFLUENT TREATMENT: Stormwater management system is implemented. Contaminated stormwater is treated via dissolved air floatation clarifier with polymer addition and activated carbon filters. Process wastewater is treated by a Rayex treatment system using ultraviolet light/ozone enhanced oxidation and activated carbon filters.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Effluent criteria for north and far north outfalls set out in C. of A. # 4-204-88-896 dated Feb. 17, 1989. and C of A # 4-0033-88 006 as amended July 18,1989. Phenols 15 µg/L (PHNOL): Total Suspended Solids 15 mg/L (RSP); Oil & Grease : 2 mg/L (SOLEXT); Pentachlorophenol: 10 µg/L (X3PCPH). Effluent criteria for far north outfall discharge to become effective December 31, 1990.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 20 µg/L for phenols, 15 mg/L total suspended solids and 15 mg/L for oil & grease are applicable for assessment of far north outfalls in 1990.

EXCEEDANCES: Phenols (3), Pentachlorophenols (9) at control point 0100; Phenols (4), Suspended Solids (RSP) (3) at control point 0300.

REMEDIAL ACTIONS: Control Order issued in March 1988 requiring company to install stormwater treatment system, stormwater management system and leachate collection system. Performance evaluation and optimization reports for the stormwater treatment system and leachate collection system were submitted to the Ministry in 1991. Operational changes to the WWTP in 1991 have greatly increased compliance at the north outfall. Ongoing studies are being conducted to determine the source of contaminants within the "clean" stormwater drainage areas discharging via the far north outfall. Action plan submitted by company in October 1991 to address effluent quality non-compliance. Company to submit a detailed remedial workplan in January 1992.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Domtar Inc. ...continued
& PLANT LOCATION: Wood Preserving, Trenton

IMISNO.: 0000141200

COMMENTS: "South" outfall diverted into treatment system as of February 1989 and discharged via "North" outfall.

04/16/92

000014-12-0(0) DOMTAR WOOD PRESERVING — TRENTON — REPORT DATE: 11 DEC 91

CONTROL POINT: 0100, NORTH DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	479	475	401	459	398	191	477	654	622	818	626.1	1090	558	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.013	0.006	0.006	0.007	0.015	0.0002	0.01	0.002	0.003	0.002	0.003	0.004	0.006	
KG /DAY (PHNOL)	REQUIREMENT	0.007	0.007	0.006	0.007	0.006	0.003	0.007	0.010	0.009	0.012	0.009	0.016	0.008	3
RESIDUE PARTIC.	ACTUAL								0.052	0.779	1.2106	0.968	2.676	1.14	
KG /DAY (RSP)	GUIDELINE								9.81	9.33	12.3	9.39	16.3	11.4	0
SOLVENT EXTRACT.	ACTUAL	0.33	0.335	0.173	0.149	0.119	0	0.064	0.052	0	0.0002	0	0.195	0.118	
KG /DAY (SOLEXT)	REQUIREMENT	0.958	0.950	0.802	0.918	0.796	0.382	0.954	1.308	1.244	1.636	1.252	2.180	1.115	0
PENTACHL PHENOL	ACTUAL	0.054	0.69	0.148	0.147	0.049	0.013	0.0002	0.054	0	0.004	0.019	0.092	0.106	
KG /DAY (X3PCPH)	REQUIREMENT	0.005	0.005	0.004	0.005	0.004	0.002	0.005	0.007	0.006	0.008	0.006	0.011	0.006	9

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 41, FOR A TOTAL COMPLIANCE RECORD OF 71% IN 1990.

000014-12-0(0) DOMTAR WOOD PRESERVING — TRENTON — REPORT DATE: 11 DEC 91

CONTROL POINT: 0300, FAR NORTH DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	139	119	161	674	582	231	152	138	592	159	88.9	306	278	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.004	0.006	0.003	0.012	0.208	0.003	0.005	0.003	0	0.002	0.0003	0.0003	0.021	
KG /DAY (PHNOL)	GUIDELINE	0.003	0.002	0.003	0.013	0.012	0.005	0.003	0.003	0.012	0.003	0.002	0.006	0.006	4
RESIDUE PARTIC.	ACTUAL								6.83	1.37	6.58	6.00	2.70	4.70	
KG /DAY (RSP)	GUIDELINE								2.07	8.88	2.39	1.33	4.59	3.85	3
SOLVENT EXTRACT.	ACTUAL	0.177	0.01	0.057	0.346	0.291	0.00007	0.028	0.067	0	0.0002	0	0.185	0.097	
KG /DAY (SOLEXT)	GUIDELINE	2.085	1.785	2.415	10.110	8.730	3.465	2.280	2.070	8.880	2.385	1.334	4.590	4.177	0
PENTACHL PHENOL	ACTUAL	0.013	0.008	0.024	0.094	0.082	0.046	0.006	0.054	0.001	0.010	0.010	0.016	0.03	
KG /DAY (X3PCPH)	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 29, FOR A TOTAL COMPLIANCE RECORD OF 76% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Dow Chemical Canada Inc. Sarnia

IMISNO.: 0000910109

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Produces solvents, chlorine, caustic, acids, plastics, vinyl chloride and miscellaneous hydrocarbons.

EFFLUENT CHARACTERISTICS: Contains chlorinated and aromatic hydrocarbons, sodium chloride.

EFFLUENT TREATMENT: Secondary treatment including saltwater biotreatment, incineration and retention.

DISCHARGE TYPE: Continuous through seven outfalls.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring as of October 1989 using 'gross' loadings and should not be compared to the 'net' loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculating the loadings.

The data for forty-seven of forty-eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated all five Combined final effluent discharges were not acutely lethal to test fish. The remaining sample, when tested, produced a 96 hour LC50 of > 100 % effluent. Five audit samples tested by MOE were also determined non-lethal.

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated both OT cooling water discharges were not acutely lethal to test fish. Two audit samples were also determined non-lethal.

01/08/91

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 28 JAN 92

S U M M A R Y FOR EMIS. TYPE: 31 COMBINED EFFLUENT DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0200 0300 0500 0600 0700 0900 1000

1990 MISA DATA FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	992775	975090	978087	990720	953278	906335	971739	1003576	962620	1019006	908179	909184	964216	
	GUIDELINE														
PH (PH)	ACTUAL	8.07	8.07	8.11	8.11	8.11	8.2	8.23	8.13	8.23	8.18	8.11	8.06	8.14	
	GUIDELINE														0
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL	9.04	5.62	3.97	8.59	5.6	7.49	8.67	13.1	7.62	6.18	5.59	3.06	7.05	
	GUIDELINE	19.5	19.7	19.5	20	19.2	17.9	18.6	19.9	19.9	14.2	13.3	13.7	17.9	0
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	4693	4428	4203	9190	3529	2792	3354	4270	3092	6194	4877	6801	4785	
	GUIDELINE														
CARBON TOTAL KG /DAY (TOC)	ACTUAL	2120	2089	2330	1866	1695	1583	1932	2613	1956	2067	1956	1928	2011	
	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 28 JAN 92
CONTROL POINT: 0200, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	67804	83324	82331	91706	96635	90985	117519	99616	114633	101032	76966	59158	90142	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.07	8.11	8.12	8.13	8.11	8.19	8.22	8.19	8.24	8.15	8.07	8.04	8.14	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	1.21	0.173	0.151	0.186	0.396	0.334	0.61	0.164	0.22				0.383	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	235	419	267	976	306	255	412	300	338	570	347	254	390	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	143	168	162	172	169	148	238	215	220	189	160	113	175	
KG /DAY (TOC)	GUIDELINE														

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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 28 JAN 92
CONTROL POINT: 0300, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	56136	56437	52007	61830	60931	65859	66825	62130	63495	69927	58922	37818	59360	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	8.1	8.1	8.2	8.2	8.3	8.3	8.4	8.3	8.23	8.13	8.11	8.2	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.505	0.113	0.104	1.24	0.122	0.856	0.334	0.124	0.127				0.392	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	168	169	624	185	183	198	200	311	254		530	113	267	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC		107	98.8	61.8	67	65.9	120	255	102	112	106	71.9	106	
KG /DAY (TOC)	GUIDELINE														

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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 28 JAN 92

CONTROL POINT: 0500, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	28182	37982	39002	42247	49568	69806	82419	101111	66158	64498	34883	47455	55276	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.25	8.16	8.2	8.17	8.15	8.23	8.3	8.24	8.23	8.16	8.23	8.09	8.2	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.08	0.008	0.086	1.57	0.115	0.252	0.129	0.223	0.23				0.299	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	124	187	149	333	192	209	241	351	198	442	291	218	245	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	61.4	83.6	88.9	86.1	89.9	121	145	243	131	127	78.1	102	113	
KG /DAY (TOC)	GUIDELINE														

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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 28 JAN 92

CONTROL POINT: 0600, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	58708	51391	50720	54659	56432	50224	51669	53099	45383	59731	55814	58218	53837	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.03	8.02	8.02	8.05	8.07	8.16	8.19	8.15	8.21	8.15	8.05	8.03	8.09	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.123	0.098	0.098	0.575	0.122	0.451	0.392	0.232	0.1				0.243	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	255	259	164	533	391	150	169	376	249	428	361	242	298	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	123	108	111	124	119	85.5	94.7	123	91.5	115	122	118	111	
KG /DAY (TOC)	GUIDELINE														

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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 3 MAR 92

CONTROL POINT: 0700, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	121514	118246	106742	109461	116319	89813	97266	94147	98537	102904	124500	122032	108457	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.08	8.01	8.07	8.08	8.08	8.19	8.21	8.2	8.23	8.17	8.09	8.05	8.12	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.667	0.917	0.248	0.633	0.414	0.319	1.15	0.358	0.412	0.581	1.54	0.451	0.641	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	932	638	368	1297	424	275	413	307	324	617	529	638	564	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	273	241	238	212	176	133	165	212	193	180	245	228	208	
KG /DAY (TOC)	GUIDELINE														

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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 3 MAR 92

CONTROL POINT: 0900, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	650922	617801	634633	616500	560807	523633	542290	579323	560596	604419	542267	566129	583277	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.08	8.11	8.08	8.06	8.09	8.14	8.2	7.96	8.21	8.14	8.1	8.09	8.11	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	6.38	4.21	3.26	4.2	4.41	5.25	6.01	12	6.5	5.6	4.05	2.61	5.37	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	2627	2518	2530	5823	1983	1657	1878	2017	1674	4137	2700	5336	2907	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	1500	1361	1606	1203	1059	1018	1144	1507	1196	1316	1221	1262	1283	
KG /DAY (TOC)	GUIDELINE														

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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 28 JAN 92

CONTROL POINT: 1000, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9509	9909	12652	14317	12586	16015	13751	14150	13818	16495	14827	18374	13867	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	8	8.2	8.1	8.1	8.2	8.2	7.8	8.2	8.23	8.1	8.04	8.1	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.076	0.099	0.025	0.186	0.025	0.032	0.041	0.042	0.028				0.062	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	352	238	101	43	50.3	48	41.3	608	55.3		119		166	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	20	20.8	25.3	7.16	15.1	11.2	24.8	58	22.1	28	23.7	33.1	24.1	
KG /DAY (TOC)	GUIDELINE														

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Dupont Canada Inc. Corunna

IMISNO.: 0000080309

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock (ethylene) from the petroleum refineries in Sarnia is used to make high density polyethelyene.

EFFLUENT CHARACTERISTICS: Contains cyclohexane and phenols.

EFFLUENT TREATMENT: Physical.

DISCHARGE TYPE: Continuous at shore.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring as of October 1989 using 'gross' loadings and should not be compared to the net loadings of previous years. The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculating the loadings.

The data for nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent was not acutely lethal to test fish. An audit sample tested by MOE was also determined non-lethal.

01/08/91

000008-03-0(9) DU PONT CANADA INC. (ST. CLAIR RIVER SITE) CORUNNA REPORT DATE: 3 MAR 92

CONTROL POINT: 0200, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	48235	52089	53067	55470	59461	58423	67697	70426	43900	57039	52643	47135	55465	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.089	0.092	0.141	0.125	0.107	0.073	0.132	0.156	0.152	0.14	0.116	0.046	0.114	
KG /DAY (PHNOL)	GUIDELINE	0.977	1.06	1.06	1.10	1.20	1.18	1.35	1.42	0.826	1.17	1.02	0.923	1.11	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Dupont Canada Inc. Kingston

IMISNO.:0000080101

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 1811

RECEIVING WATERBODY: DIRECT: 0.9 Km to Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Adipic acid and Hexamethlyenediamine are reacted to form a synthetic-nylon.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics such as phenols,Dowtherm.

EFFLUENT TREATMENT: Partial settling.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 20 ppb for phenols (PHNOL)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for seven of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent # 700 to have not been acutely lethal to test fish. However, one of the remaining samples was determined acutely lethal. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 86.4 %. The other sample when tested, resulted in a 96 hour LC50 > 100 % effluent.

The data for eight of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent # 1100 to have not been acutely lethal to test fish. The remaining sample when tested, produced a 96 hour LC50 > 100 % effluent. An audit sample tested by MOE was determined non-lethal.

01/10/92

000008-01-0(1) DU PONT CANADA INC. (KINGSTON SITE) KINGSTON REPORT DATE: 11 OCT 91

S U M M A R Y FOR PROCESS EFFLUENT DISCHARGED INTO:
INCLUDES CONTROL POINTS 0700 1100

1990 MISA DATA FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	43111	42775	40395	43948	47657	52027	54695	60249	86199	67728	50871	41104	52563	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.18	8.21	8.13	8.14	8.12	8.11	8.06	8.12	8.13	8.18	8.18	8.23	8.15	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.0934	0.0664	0.0472	0.0477	0.0612	0.0604	0.0590	0.1210	0.0893	0.02	0.023	0.08	0.064	
KG /DAY (PHNOL)	GUIDELINE	0.864	0.862	0.821	0.877	0.959	1.05	1.09	1.20	1.74	1.45	1.01	0.833	1.06	0
CARBON TOTAL	CALC							54.8		136	236	187	157	154	
KG /DAY (TOC)	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

LOADING VALUES FOR TOC (JULY, SEPTEMBER) ARE BASED ON A SINGLE DAILY RESULT.

EFFLUENT FROM CONTROL POINTS 0700 AND 1100 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINTS 0200 AND 0100 (IMIS); RESPECTIVELY.

000008-01-0(1) DU PONT CANADA INC. (KINGSTON SITE) KINGSTON REPORT DATE: 11 OCT 91
CONTROL POINT: 0700, SERVICE SEWAGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	21563	21391	14871	16216	21626	26023	28311	33123	58814	42903	18927	16428	26683	
	GUIDELINE														
PH (PH)	ACTUAL	8.15	8.19	8.16	8.12	8.08	8.08	8.06	8.1	8.12	8.16	8.18	8.13	8.13	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	0.0533	0.0297	0.0187	0.0175	0.0241	0.0264	0.033	0.037	0.062	0.01	0.007	0.02	0.0282	
	GUIDELINE	0.433	0.434	0.311	0.322	0.438	0.527	0.566	0.662	1.19	0.984	0.379	0.342	0.549	0
CARBON TOTAL KG /DAY (TOC)	CALC							54.8			136	57.2	50.9	74.7	
	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

EFFLUENT FROM CONTROL POINT 0700 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINT 0200 (IMIS).

000008-01-0(1) DU PONT CANADA INC. (KINGSTON SITE) KINGSTON REPORT DATE: 11 OCT 91
CONTROL POINT: 1100, CATCH TANK OUTFALL 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	21548	21384	25524	27732	26031	26004	26384	27126	27385	24825	31944	24676	25880	
	GUIDELINE														
PH (PH)	ACTUAL	8.21	8.23	8.09	8.15	8.16	8.14	8.05	8.13	8.13	8.19	8.17	8.33	8.17	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	0.0401	0.0368	0.0285	0.0302	0.0372	0.034	0.026	0.084	0.0273	0.01	0.016	0.06	0.0358	
	GUIDELINE	0.431	0.428	0.510	0.555	0.521	0.520	0.528	0.543	0.548	0.461	0.632	0.491	0.514	0
CARBON TOTAL KG /DAY (TOC)	CALC									136	100	130	106	118	
	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

EFFLUENT FROM CONTROL POINT 1100 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

LOADING VALUES FOR TOC (FEBRUARY, SEPTEMBER) ARE BASED ON A SINGLE DAILY RESULT.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Dupont Canada Inc.
& PLANT LOCATION: Maitland

IMIS NO.: 0000080002

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Cyclohexane is converted into adipic acid; adiponitrile is converted to hexamethyle diamine; also produces spandex yarn, hydrogen peroxide, chlorofluorocarbons and engineering polymers.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics.

EFFLUENT TREATMENT: Activated sludge, with nitrification/denitrification.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 15 mg/L for BOD and 15 mg/L for suspended solids (RSP -residue particulate).

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Results reported are based on the summation of loadings from internal process streams under IMIS. The MISA program required sampling of the total plant discharge. MOE staff are reviewing current monitoring programs to determine adequacy for compliance assessment.

The data for eight of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent to have not been acutely lethal to test fish. The remaining sample when tested, produced a 96 hour LC50 > 100 % effluent. An audit sample tested by MOE was determined non-lethal.

01/10/92

000008-00-0(2) DU PONT CANADA INC. (MAITLAND SITE) MAITLAND REPORT DATE: 16 JAN 92

CONTROL POINT: 0200, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	165900	184700	177200	167900	209500	219800	209000	179400	237200	207000	162100	171100	190900	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1138	715	832	1387	1157	700	965	334	841	1834	442	844	932	
KG /DAY (BOD5)	GUIDELINE	2489	2771	2658	2519	3143	3297	3135	2691	3558	3105	2432	2567	2864	0
KJELDAHL ORGANIC	ACTUAL	502	308	394	348	493	355	144	112	83	400	161	283	298	
KG /DAY (NNKUR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1178	1079	948	621	1271	1483	1170	601	925	638	989	1558	1038	
KG /DAY (RSP)	GUIDELINE	2489	2771	2658	2519	3143	3297	3135	2691	3558	3105	2432	2567	2864	0
CARBON TOTAL	ACTUAL	988	732	749	912	838	425	612	248	540	1113	373	616	679	
KG /DAY (TOC)	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000008-00-0(2) DU PONT CANADA INC. (MAITLAND SITE) MAITLAND REPORT DATE: 10 DEC 91

CONTROL POINT: 0300, SEWAGE TREATMENT DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	180	220	280	250	210	250	340	370	360	260	210	250	265	
M3 /DAY (FTFLOW)	GUIDELINE														
KJELDAHL ORGANIC	ACTUAL	0.5	0.7	0.9	0.2	0.3	0.3	0.7	0.7	0.9	0.5	0.4	0.3	0.533	
KG /DAY (NNKUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	0	0.4	0.5	0.5	0.9	0.3	0.7	0	0	0.3	0.2	0.1	0.325	
KG /DAY (TOC)	GUIDELINE														

****

000008-00-0(2) DU PONT CANADA INC. (MAITLAND SITE) MAITLAND REPORT DATE: 11 OCT 91

CONTROL POINT: 1100, COMBINED DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	165452	185215	176613	173134	211742	226367	211065	186323	243367				197698	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	CALC	3330	2350	2290	3890	4480	15500	6530	3180	17000				6506	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	CALC	2100	959	1840	1320	1400	2430	1300	1070	2540				1662	
KG /DAY (TOC)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

CONTROL POINT 1100 (MISA) CONTAINS THE COMBINED EFFLUENT FROM THE PREVIOUSLY REPORTED CONTROL POINTS 0200 AND 0300 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Eastmaque Gold Mines Ltd. Kirkland Lake

IMISNO.:0111350005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Lower Kirkland Lake
INDIRECT: Amikougami Creek

DESCRIPTION OF ACTIVITY: 1820 metric tonne flotation mill reprocessing old gold mine tailings to produce a gold concentrate.

EFFLUENT CHARACTERISTICS: Contains suspended solids, nickel, copper, lead, zinc, arsenic, phenols, phosphorus.

EFFLUENT TREATMENT: Settling of tailings in retention pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (March 29, 1989).

EXCEEDANCES: Suspended Solids (RSP) (3), Iron (2)

REMEDIAL ACTIONS: Exceedances are caused by short circuiting in tailings management system. Company has taken action to prevent short circuiting of system.

COMMENTS: Suspended Solids exceedances occurred in March, April and May. This was caused by short circuiting in the tailings management system.

One sample of final discharge effluent was tested for acute toxicity as required under the MISA monitoring regulations and resulted in a 96 hour LC50 > 100 % effluent. An audit sample tested by the MOE was determined as not acutely lethal to test fish.

12/16/91

011135-00-0(5) EASTMAQUE GOLD MINES LTD — KIRKLAND LAKE — REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
MG/L AS AS	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER UNF.TOT.	ACTUAL	0	0	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0	0.004	
MG/L AS CU	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.82	1.25	0.92	0.81	1.23	0.43	0.31	0.14	0.14	0.14	0.5	0.34	0.586	
MG/L AS FE	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	2
NICKEL UNF.TOT.	ACTUAL	0.01	0.01	0	0	0		0	0	0	0	0	0	0.002	
MG/L AS NI	REQUIREMENT	1	1	1	1	1		1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL	0				0	0							0	
MG/L (NNH3FR)	REQUIREMENT	10				10	10							10	0
LEAD UNF.TOT.	ACTUAL	0.01	0.03	0.01	0	0	0	0	0	0	0	0	0	0.004	
MG/L AS PB	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.13	6.83	6.72	6.93	7.1	7.14	7.03	6.9	6.82	7.33	7.34	7.17	7.04	
(PH)	REQUIREMENT														0
RESIDUE PARTIC.	ACTUAL	3.9	10.05	17.1	18.52	34.39	7.2	1.13	0	0.5	4.45	11.69	3.64	9.38	
MG/L (RSP)	REQUIREMENT	15	15	15	15	15	15	15	15	15	15	15	15	15	3
ZINC UNF.TOT.	ACTUAL	0.01	0.01	0	0	0.01	0	0	0	0	0	0	0	0.003	
MG/L AS ZN	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1990.

011135-00-0(5) EASTMAQUE GOLD MINES LTD — KIRKLAND LAKE — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		604	8895	23130	20218	6478	7865	3603	7576	14361	11992	5330	10005	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		6.67	6.77	7.03	7.22	7.07	6.97	6.87	6.94	7.41	7.31	7.05	7.03	
(PH)	REQUIREMENT														
ARSENIC UNF.TOT.	CALC		0.004	0.044	0.123	0.101	0.041	0.0393	0.018	0.0379	0.0718	0.06	0.0267	0.0515	
KG /DAY (ASUT)	REQUIREMENT														
COPPER UNF.TOT.	CALC		0.00685	0.0923	1.48	0.407	0.0934	0.0956	0.036	0.0764	0.149	0.12	0.0565	0.238	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC		0.5	4.81	45.5		2.9	0.659	0.89	2.96	9.69	10.3	1.53	7.97	
KG /DAY (FEUT)	REQUIREMENT														
NICKEL UNF.TOT.	CALC		0.012	0.191	0.463	0.404	0.1	0.0812	0.036	0.0758	0.144	0.12	0.0533	0.153	
KG /DAY (NIUT)	REQUIREMENT														
LEAD UNF.TOT.	CALC		0.0181	0.267	0.694	0.607	0.161	0.157	0.0721	0.152	0.287	0.24	0.107	0.251	
KG /DAY (PBUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC		8.64	53.6	1115	409	38.9	44.4	17.8	38.2	205	89.8	34.5	187	
KG /DAY (RSP)	REQUIREMENT														
ZINC UNF.TOT.	CALC		0.00944	0.089	0.313	0.223	0.0648	0.0987	0.036	0.0758	0.152	0.12	0.0533	0.112	
KG /DAY (ZNUT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: E. B. Eddy Forest Products Ltd. Espanola

IMISNO.: 0000980003

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Spanish River
INDIRECT: 47 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs and chips are converted by the bleached kraft pulping process into pulp and paper.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper) and dissolved organic compounds.

EFFLUENT TREATMENT: Two clarifiers on paper machine effluents; the total effluent is treated by settling basins, an aeration lagoon and a settling lagoon. Foul condensates are steam stripped to remove odorous organics. In-mill recovery systems remove bark fines and fibre in the wastewaters from pulp washing, paper machine and bleaching areas.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (November 7,1989): The BOD limit is 10.4 tonnes on any on day and not to exceed 6.0 tonnes per day averaged over any 30 consecutive working days. The Suspended Solids limit is 12.9 tonnes on any one day and not to exceed 7.5 tonnes per day averaged over any 30 consecutive days.

EXCEEDANCES: Biochemical Oxygen Demand (1): The one daily exceedance occurred in September 1990.

REMEDIAL ACTIONS: Exceedance was the result of problems associated with start up after a 21 day shutdown. The dissolved oxygen content in the river was predicted to be above the minimum requirement of the Control Order. All tests indicated non-toxic effluent. The Spills Prevention Strategy will address the procedures to deal with this problem in the future.

COMMENTS: The data for five of seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Main Mill Sewer effluent was not acutely lethal to test fish. The remaining samples resulted in 96 hour LC50s > 100 % effluent.

12/16/91

000098-00-0(3) E.B. EDDY FOREST PRODUCTS LTD. ESPANOLA REPORT DATE: 2 DEC 91
CONTROL POINT: 0100, MAIN SEWER DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	103000	98000	96000	60000	115000	118700	127300	101300	95000	106400	102900	100800	102033	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.5	7.6	7.8	7.6	7.6	7.6	7.7	7.6	7.7	7.6	7.6	7.6	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	2400	2000	2200	840	1900	1490	1280	880	4460	1840	1680	2050	1918	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	4300	3500	3900	1280	2200	3200	2250	2130	1210	2940	2650	2130	2641	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97.2 % IN 1990.

000098-00-0(3) E.B. EDDY FOREST PRODUCTS LTD. ESPANOLA REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, MAIN SEWER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	104031	97565	97115	58329	114852	118824	127387	100800	95978	106494	101936	98797	101842	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.42	7.5	7.56	7.82	7.62	7.63	7.6	7.65	7.55	7.67	7.64	7.59	7.6	
(PH)	GUIDELINE														
BOD 5 DAY	CALC	2546	1927	2182	910	1853	1513	1267	870	4428	1841	1656	2220	1934	
KG /DAY (BOD5)	REQUIREMENT														
RESIDUE PARTIC.	CALC	4298	3428	3931	1267	2191	3212	2272	2117	1214	2946	2594	2041	2626	
KG /DAY (RSP)	REQUIREMENT														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: E. B. Eddy Forest Products Ltd. Ottawa

IMIS NO.: 0000980201

MOE REGION: Southeast

DISTRICT: Ottawa

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Ottawa River
INDIRECT: St. Lawrence River

DESCRIPTION OF ACTIVITY: Converts pulp into paper for writing and printing.

EFFLUENT CHARACTERISTICS: Contains suspended solids (clay) and trace organics.

EFFLUENT TREATMENT: Three Savealls, whitewater recycle systems and a clarifier remove solids.

DISCHARGE TYPE: Continuous through a discharge pipe.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (May 1978) The Control Order specifies that E. B. Eddy cannot exceed 9 lbs of suspended solids discharged per ton of saleable product.

MOE OR FEDERAL GUIDELINES: (May 1978) MOE guideline for BOD5 is 1200 kg/day.

EXCEEDANCES: Biochemical Oxygen Demand (6): The company also exceeded its Control Order for Suspended Solids twice.

REMEDIAL ACTIONS: Company has submitted a proposal for meeting requirements. The proposal is presently under review by Ministry staff. A new control order has been developed and forwarded for approval.

COMMENTS: The data for five of twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Effluent discharge to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 43.5 - 80.6 %. Three of the remaining seven samples, when tested resulted in 96 hour LC50s of > 100 % effluent. The remaining four samples were non-lethal. An audit sample tested by MOE was also determined as non-lethal.

01/10/92

000098-02-0(1) E.B. EDDY FOREST PRODUCTS LTD. OTTAWA REPORT DATE: 15 OCT 91

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8747	8032	7271	7147	7197	6909	7263	7350	7252	7478	7283	6644	7381	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1505	1410	862	962	1400	915	1160	916	726	1240	1270	1410	1148	
KG /DAY (BOD5)	GUIDELINE	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	6
RESIDUE PARTIC.	ACTUAL	687	599	558	526	499	412	388	304	303	301	412	362	446	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 75 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Esso Chemical Canada Ltd. Sarnia

IMIS NO.: 0000070201

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Polymerizes ethylene produced from natural gas and feed from petroleum refinery to produce polyethylene. Polymerizes vinyl chloride monomer to produce polyvinyl chloride. Fractionates feed from refinery to produce benzene, toluene and xylene.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble hydrocarbons.

EFFLUENT TREATMENT: Physical and chemical including carbon adsorption.

DISCHARGE TYPE: Continuous through an extended outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring as of October 1989 using gross loadings and should not be compared to the net loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in the effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings.

The data for ten trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent was not acutely lethal to test fish.

01/08/91

000007-02-0(1) ESSO CHEMICAL CANADA (SARNIA CHEMICAL PLANT) SARNIA REPORT DATE: 28 JAN 92
CONTROL POINT: 0300, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	27119	26506	28028	28665	30240	31439	28039	30381	29144	26666	25410	26301	28162	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	8.1	8.08	8	8.24	8.67	8.45	8.63	8.59	8.43	8.27	8.32	8.31	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC		2.63			2.38				2.63				2.55	
KG /DAY (NHHTFR)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.054	0.055	0.064	0.057	0.06	0.069	0.058	0.06	0.055	0.079	0.054	0.057	0.0602	
KG /DAY (PHNOL)	GUIDELINE	0.537	0.549	0.517	0.571	0.604	0.609	0.577	0.601	0.554	0.556	0.540	0.522	0.561	0
RESIDUE PARTIC.	CALC	196	161	117	142	196	122	186	211	197	250	229	212	185	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	56.2	27.7	47.6	36.4	35	43.5	31.6	43.6	27.7	11.2	17.6	0	31.5	
KG /DAY (SOLEXT)	GUIDELINE	403	416	387	428	453	457	433	451	415	419	345	365	414	0
SULPHIDE UNF.REAC	CALC		0.263			0.238				0.263				0.255	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	258	222	181	114	205	188	168	205	195				193	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION:	Esso Petroleum Canada (previously reported as Texaco Canada Inc.) Nanticoke Refinery, Jarvis	IMIS NO.: 0000520205
MOE REGION:	West Central	DISTRICT: Haldimand -Norfolk
INDUSTRIAL SECTOR:	Petroleum Refining	SIC CODE: 3651
RECEIVING WATERBODY:	DIRECT: Lake Erie INDIRECT:	

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Primary oil separation, equalization, dissolved air flotation, biological treatment, clarification and filtration, and final holding ponds.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Federal Petroleum Refinery Regulations and Guidelines

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Degree of air cooling is maximized.

01/14/92

000052-02-0(5) ESSO PETROLEUM CANADA LTD. JARVIS REPORT DATE: 23 JAN 92
CONTROL POINT: 0200, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8405	9377	6389	6502	4474	6267	6633	6188	6242	6450	5900	6695	6627	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.66	7.73	7.8	7.75	7.89	7.76	7.94	8.03	7.79	7.89	7.87	7.85	7.83	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	22.3	19.8	1.6	3.14	3.43	8.95	3.37	2.51	3.33	0.41	0.384	0.405	5.8	
KG /DAY (NNHTFR)	GUIDELINE	80.4	88.9	64.4	63.4	47.6	66.6	67.1	59.8	59.1	63.7	58.5	68.2	65.6	0
PHENOLS UNF-REAC	CALC	0.114	0.071	0.031	0.034	0.018	0.036	0.029	0.029	0.02	0.014	0.016	0.021	0.0361	
KG /DAY (PHNOL)	GUIDELINE	0.171	0.187	0.128	0.13	0.0895	0.129	0.133	0.123	0.125	0.129	0.118	0.134	0.133	0
RESIDUE PARTIC.	CALC	152	118	46.7	54.6	35.6	47.9	46.2	39.9	41.1	26.1	14.9	32.8	54.7	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	23	21.3	8.07	9.21	7.92	11	8.11	9.22	6.75	9.72	9.18	12.6	11.3	
KG /DAY (SOLEXT)	GUIDELINE	84.1	93.8	63.9	65	44.7	62.7	66.3	61.9	62.4	64.5	59	67	66.3	0
SULPHIDE UNF.REAC	CALC	0.098	0.526	0.254	0.337	0.624	0.628	1.15	0.744	0.426	0.395	0.339	0.304	0.485	
KG /DAY (SSIDUR)	GUIDELINE	79.3	91.3	63.4	63.4	47.6	66.5	67.3	59.8	59.1	63.7	58.5	68	65.7	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Esso Petroleum Canada, Sarnia

IMIS NO.: 0000070102

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651, 3652

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble compounds from crude oil at the parts per billion range.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation prior to discharge to the St. Clair River. Process and essentially all Storm Water receives both primary and secondary (biological) treatment before discharge. High strength wastewaters and effluent from the sour water stripper are biologically pretreated before discharge to the activated sludge process. Other wastewaters are filtered by sand and anthracite before discharge to the activated sludge process.

DISCHARGE TYPE: Continuous through three outfalls.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings. Summary data were reported in previous years as NET data under control point 0200. The data reported for 1989 should not be compared to previous years.

01/08/91

000007-01-0(2) ESSO PETROLEUM CANADA - A DIV. OF IMPERIAL OIL LTD. SARNIA REPORT DATE: 28 JAN 92

S U M M A R Y FOR COMBINED EFFLUENT
INCLUDES CONTROL POINTS: 0300 0400 0500 0600

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	220479	221932	225941	223932	221143	221630	223192	220419	221847	221341	221248	220123	221936	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.88	7.89	7.88	7.87	7.99	8.14	8.11	8.11	8.19	8.1	7.94	7.84	7.99	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	27.7	31.1	51.9	9.49	8.65	31	70	30.5	31	30.8	33.7	55.2	34.3	
KG/DAY (NNHTFR)	GUIDELINE	2205	2219	2259	2239	2211	2216	2232	2204	2218	2213	2212	2201	2219	0
PHENOLS UNF-REAC	CALC	0.179	0.195	0.284	0.472	0.411	0.354	0.379	0.412	0.217	0.437	0.104	0.1	0.295	
KG /DAY (PHNOL)	GUIDELINE	4.42	4.44	4.52	4.48	4.43	4.44	4.47	4.41	4.44	4.43	4.43	4.41	4.44	0
RESIDUE PARTIC.	CALC	1846	1719	1689	1869	1367	1079	946	1032	889	1179	1991	1599	1434	
KG/DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	135	445	87	266	249	362	223	204	145	205	67.4	146	211	
KG/DAY (SOLEXT)	GUIDELINE	2205	2219	2259	2239	2211	2216	2232	2204	2218	2213	2212	2201	2219	0
CARBON TOTAL	CALC	923	905	1114	585	798	2411	2425	783	899	794	788	750	1098	
KG/DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000007-01-0(2) ESSO PETROLEUM CANADA - A DIV. OF IMPERIAL OIL LTD. SARNIA
CONTROL POINT: 0300, 1990 MISA DATA
REPORT DATE: 28 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	28179	29632	33641	31632	28843	29330	30892	28119	29547	29041	28948	27823	29636	
	GUIDELINE														
PH (PH)	ACTUAL	7.55	7.57	7.56	7.53	7.57	7.87	7.82	7.72	7.87	7.7	7.57	7.48	7.65	
	GUIDELINE														
NH3-N TOTAL KG/DAY (NNHTFR)	CALC	8.45	11.9	13.5	9.49	8.65	11.7	12.4	11.2	11.8	11.6	14.5	16.7	11.82	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	0.064	0.137	0.13	0.164	0.084	0.066	0.071	0.104	0.14	0.129	0.066	0.062	0.101	
	GUIDELINE														
RESIDUE PARTIC. KG/DAY (RSPLOI)	CALC	346	373	535	311	271	310	292	186	216	333	260	214	304	
	GUIDELINE														
SOLVENT EXTRACT. KG/DAY (SOLEXT)	CALC	19.7	2.96	10.1	34.8	37.5	35.2	30.9	30.9	29.5	31.9	28.9	30.6	26.9	
	GUIDELINE														
CARBON TOTAL KG/DAY (TOC)	CALC	420	376	552	259	369	311	324	343	402	354	344	351	367	
	GUIDELINE														

000007-01-0(2) ESSO PETROLEUM CANADA - A DIV. OF IMPERIAL OIL LTD. SARNIA
REPORT DATE: 28 JAN 92
S U M M A R Y FOR COMBINED COOLING WATER EFFLUENT
INCLUDES CONTROL POINTS: 0400 0500 0600
1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	192300	192300	192300	192300	192300	192300	192300	192300	192300	192300	192300	192300	192300	
	GUIDELINE														
PH (PH)	ACTUAL	8.2	8.2	8.2	8.2	8.4	8.4	8.4	8.5	8.5	8.5	8.3	8.2	8.33	
	GUIDELINE														
NH3-N TOTAL KG/DAY (NNHTFR)	CALC	19.2	19.2	38.5	0	0	19.2	57.7	19.2	19.2	19.2	19.2	38.5	22.4	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	0.115	0.0577	0.154	0.308	0.327	0.288	0.308	0.308	0.0769	0.308	0.0385	0.0385	0.194	
	GUIDELINE														
RESIDUE PARTIC. KG/DAY (RSP)	CALC	1500	1346	1154	1558	1096	769	654	846	673	846	1731	1385	1130	
	GUIDELINE														
SOLVENT EXTRACT. KG/DAY (SOLEXT)	CALC	115	442	76.9	231	212	327	192	173	115	173	38.5	115	184	
	GUIDELINE														
CARBON TOTAL KG/DAY (TOC)	CALC	503	529	562	325	429	2100	2100	440	497	440	444	399	731	
	GUIDELINE														

INDIVIDUAL COOLING WATER EFFLUENTS (CONTROL POINTS 0400 0500 0600), NOW REPORTED AS A COMBINED SUMMARY OF COOLING WATER EFFLUENTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Essroc Canada Inc. (previously reported as Lake Ontario Cement) Picton

IMISNO.:0041860008

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE:

RECEIVING WATERBODY: DIRECT: Picton Bay
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Cement manufacture

EFFLUENT CHARACTERISTICS: Biochemical Oxygen Demand, Suspended solids and total phosphorus typical of domestic sewage.

EFFLUENT TREATMENT: Napier Reid package mechanical treatment plant.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Operational objectives for the secondary mechanical treatment plant BOD5 and suspended solids (RSP) 25 mg/L are assessed on an annual average. Total phosphorus (PPUT) 1 mg/L is assessed on a monthly basis.

EXCEEDANCES: Compliance with BOD and RSP guidelines for the sewage plant could not be assessed due to changes in the monitoring program under MISA.

REMEDIAL ACTIONS:

COMMENTS: During storm events cement dust is carried into the plant's effluent system resulting in high particulate discharge. The company has modified vehicle washing procedures and made changes to the site (grading, ground cover) to reduce the problem. The company is continuing to assess the feasibility of utilizing a closed loop, totally recirculated wastewater system.

Note: Control point 0100 - sewage effluent, actually represents combined discharge of STP effluent and cooling water.

04/16/91

004186-00-0(8) ESSROC CANADA INC. - PICTON CEMENT PLANT PICTON REPORT DATE: 03 SEP 91
CONTROL POINT: 0300, CEMENT PLANT EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL								7925	7079	7173	6927	7274	7276	
M3 /DAY (FTFLOW)	GUIDELINE														
PHOSPHOR UNF. TOT.	ACTUAL										0.854			0.854	
KG/DAY (PPUT)	GUIDELINE										7.12			7.12	0
RESIDUE PARTIC.	ACTUAL								487	421	125	112	292	287	
KG/DAY (RSP)	GUIDELINE								S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 1 , FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

AS OF AUGUST 1990, CONTROL POINT 0300 (MISA) ALSO CONTAINS THE COMBINED EFFLUENT FROM THE PREVIOUSLY REPORTED CONTROL POINTS 0100, 0200, AND 0300 (IMIS).

DUE TO CHANGES IN THE MONITORING PROGRAMS ONLY MISA DATA IS REPORTED.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ethyl Canada Inc. Corunna

IMISNO.: 0000120006

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Tetraethyl lead is made from a lead-sodium alloy and ethyl chloride. Various other fuel additives are blended.

EFFLUENT CHARACTERISTICS: Contains organic and inorganic lead and miscellaneous trace hydrocarbons.

EFFLUENT TREATMENT: Physical-chemical.

DISCHARGE TYPE: Continuous through an extended outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C of A #4-021-86-006 for combined plant effluent for alkyl lead.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent was not acutely lethal to test fish. An audit sample tested by the MOE was also determined as non-lethal.

01/08/91

000012-00-0(6) ETHYL CANADA INC. CORUNNA REPORT DATE: 06 MAR 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	34078	32435	31767	26756	25821	27443	28414	33317	27728	37848	30949	32848	30784	
M3 /DAY (FTFLOW)	GUIDELINE														
LEAD UNF.TOT.	CALC	13.5	11.6	4.84	7.52	6.57	4.49	4.1	6.8	7.55	14	6.94	11.6	8.29	
KG /DAY (PBUT)	GUIDELINE	32.3	31.1	32.5	27.1	29.8	28.5	27.2	31.0	28.3	45.6	31.1	32.8	31.4	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Exolon-Esk Company of Canada Ltd. (previously reported as Exolon) Thorold

IMIS NO.: 0001640002

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3571

RECEIVING WATERBODY: DIRECT: 9.7 km from Beaverdams Pond to 12 Mile Creek
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Manufactures abrasive products

EFFLUENT CHARACTERISTICS: Furnace cooling water which contains Total Suspended Solids and Organics (measured by oil and grease test).

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring using "Gross" Loadings in 1989 and should not be compared to Net Data previously reported. The reported increase in RSP loadings does not imply a decrease in effluent quality.

The data for ten of eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Outfall Beaver Dam Road effluent was not acutely lethal to test fish. The remaining sample when tested, resulted in a 96 hour LC50 > 100 % effluent. An audit sample tested by the MOE was also determined as non-lethal.

04/16/92

000164-00-0(2) EXOLON-ESK COMPANY OF CANADA LTD. THOROLD REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, BEAVER DAM RD. DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9715	10131	8415	8352	8739	8218	11031	10890	9501	10256	10128	9790	9597	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	CALC	91.8	78.2	127	163	141	129	357	296	190	232	290	268	197	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	3.98	10.2	8.41	7.65	8.27	7.06	10.7	11.6	9.67	11	9.6		8.92	
KG /DAY (SOLEXT)	GUIDELINE	139	157	131	119	129	110	168	181	142	155	146		143	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Explosives Technologies International Inc. (ETI) Nipissing Works, North Bay

IMISNO.: 0000080200

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3799

RECEIVING WATERBODY: DIRECT: La Vase River - Lake Nipissing
INDIRECT: 121 km from French R. Main Channel

DESCRIPTION OF ACTIVITY: Production of explosives based on ammonium nitrate and methylamine nitrate.

EFFLUENT CHARACTERISTICS: Contains nitrates and ammonia.

EFFLUENT TREATMENT: Equalization pond for pH control.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario.

EXCEEDANCES: Suspended Solids (RSP) (2)

REMEDIAL ACTIONS:

COMMENTS: The data for three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Discharge at weir effluent was not acutely lethal to test fish. An audit sample tested by the MOE was also determined as non-lethal.

12/16/91

000008-02-0(0) EXPLOSIVE TECHNOLOGIES INTERNATIONAL LTD. NORTH BAY

CONTROL POINT: 0100, WEIR DISCHARGE 1990 MISA DATA

REPORT DATE: 09 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	272	382	1868	2160	1825	389	272	1663	272	812	505		947	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.81	7.11	7.26	6.87	7.16	7.6	7.16	7.14	7.34	7.63	7.21		7.3	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	2.12	1.1	13.8	3.9	11.7	2.2	2.3	3.6	0.025	3	2.07		4.17	
KG /DAY (NNHTFR)	GUIDELINE	2.72	3.82	18.7	21.6	18.3	3.89	2.72	16.6	2.72	8.12	5.05		9.47	0
NO2+NO3N FIL.REAC	ACTUAL	3.27	2.44	69	7.8	18	3.9	0.544	5.7	0.95	6.1	6.57		11.3	
KG /DAY (NNOTFR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1.14	1.91	61.6	17.3	47.5	3.5	2.45	6.98	3.54	8.93	5.05		14.5	
KG /DAY (RSP)	GUIDELINE	4.08	5.73	28	32.4	27.4	5.84	4.08	24.9	4.08	12.2	7.57		14.2	2

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 93.9 % IN 1990.

RSF NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Falconbridge Gold Corporation (previously reported as Canamax Ltd.) Bell Creek Mine, Porcupine

IMIS NO.: 0046950002

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Bell Creek to Porcupine stream.
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold ore is mined and milled to separate into gold concentrates and tailings (cyanidation/zinc precipitation)

EFFLUENT CHARACTERISTICS: Contains cyanides, dissolved metals, copper, lead, zinc, nickel and suspended solids.

EFFLUENT TREATMENT: Two stage tailings management system.

DISCHARGE TYPE: Seasonal.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): MAY 14, 1985:

EXCEEDANCES: Arsenic (1)

REMEDIAL ACTIONS: The company applied for and obtained approval for an improved 3 stage tailings management system along with increased mill recirculation in 1989. Construction was completed in 1990. Cyanide results were in compliance in 1990.

COMMENTS: The treatment system utilizes natural degradation and settling and discharge on a seasonal basis.

The data for a trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final discharge effluent to had been not acutely lethal to test fish. An audit sample tested by MOE was also non-lethal.

12/16/91

004695-00-0(2) FALCONBRIDGE GOLD CORPORATION - BELL CREEK MINE PORCUPINE

REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL								0.53	0.42	0.33			0.427	
MG/L AS AS	GUIDELINE								0.5	0.5	0.5			0.5	1
CYANIDE AVAIL	ACTUAL								0.12	0.12	0.19			0.143	
MG/L AS HCN	REQUIREMENT								2	2	2			2	0
CYANIDE FREE	ACTUAL								0.002	0.008	0.09			0.033	
MG/L AS HCN	REQUIREMENT								2	2	2			2	0
COPPER UNF.TOT.	ACTUAL								0.22	0.23	0.17			0.207	
MG/L AS CU	REQUIREMENT								1	1	1			1	0
IRON UNF.TOT.	ACTUAL								0.27	0.29	0.37			0.310	
MG/L AS FE	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL								0.25	0.22	0.33			0.267	
MG/L AS NI	REQUIREMENT								1	1	1			1	0
NH3-N FIL.REAC	ACTUAL								0.53	0.53	0.63			0.563	
MG/L (NNH3FR)	REQUIREMENT								10	10	10			10	0
LEAD UNF.TOT.	ACTUAL								< 0.01	< 0.01	< 0.01			< 0.01	
MG/L AS PB	REQUIREMENT														
PH	ACTUAL								7.18	7.95	7.3			7.48	
(PH)	REQUIREMENT														0
RESIDUE PARTIC.	ACTUAL								3	6	5			4.67	
MG/L (RSP)	REQUIREMENT								15	15	15			15	0
RESIDUE TOTAL	ACTUAL								480					480	
MG/L (RST)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL								0.21	0.25	0.73			0.40	
MG/L AS ZN	REQUIREMENT								1	1	1			1	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1990.

004695-00-0(2) FALCONBRIDGE GOLD CORPORATION - BELL CREEK MINE PORCUPINE REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL							2323	1134	722	1449	2453		1616	
M3 /DAY (FTFLOW)	REQUIREMENT														
PH	ACTUAL							7.21	7.55	7.4	7.5	7.48		7.43	
(PH)	REQUIREMENT														
ARSENIC UNF.TOT.	CALC								0.289	0.019	0.311			0.206	
KG /DAY (ASUT)	REQUIREMENT														
CYANIDE AVAIL	CALC							0.155	0.143	0.125	0.836	1.77		0.606	
KG /DAY (CCNAUR)	REQUIREMENT														
COPPER UNF.TOT.	CALC								0.12	0.011	0.352			0.161	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC								0.147	0.013	0.383			0.181	
KG /DAY (FEUT)	GUIDELIN														
NICKEL UNF.TOT.	CALC								0.136	0.011	0.352			0.167	
KG /DAY (NIUT)	REQUIREMENT														
LEAD UNF.TOT.	CALC								0.005	0.001	0.011			0.00579	
KG /DAY (PBUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC							47.3	10.8	1.27	10.2	25.4		19	
KG /DAY (RSP)	REQUIREMENT														
SULPHATE UNF.REAC	CALC									9.4				9.4	
KG /DAY (SSO4UR)	REQUIREMENT														
ZINC UNF.TOT.	CALC								0.114	0.015	0.912			0.347	
KG /DAY (ZNUT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

RST NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Falconbridge Ltd. NIR Road, Falconbridge

IMIS NO.: 0001700004

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Coniston Creek to Wanapitei River
INDIRECT: 80 km. to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Converts ore into metallic matte.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with Calcium Oxide (quicklime)/ slag granulation water is also neutralized.

DISCHARGE TYPE: Continuous decant flow from main tailings area.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (September 2, 1987) Requirements are Mineral Mining Guidelines as specified in Certificate of Approval.

EXCEEDANCES: Iron (2), Nickel (1)

REMEDIAL ACTIONS: A detailed study of the wastewater treatment system is being conducted. The final report will be evaluated by MOE upon completion.

COMMENTS: The data for four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge at Ref. Rd was not acutely lethal to test fish.

04/16/92

000170-00-0(4) FALCONBRIDGE LTD. - NIR RD.
CONTROL POINT: 0300, FINAL DISCHARGE
FLOW/LOADING PARAMETERS

FALCONBRIDGE

REPORT DATE: 10 JAN 92

1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	35755	23648	37761	37342	29138	16927	4628	104711	16701	28945	34946	25460	32997	
M3/DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.99	6.98	6.63	7.05	6.94	7.08	6.38	6.82	6.82	6.94	6.77	6.75	6.85	
(PH)	REQUIREMENT														0
COPPER UNF. TOT.	ACTUAL	0.72	0.71	0.76	0.75	0.87	0.34	0.23	1.05	0.17	0.29	0.35	0.51	0.56	
KG/DAY (CUUT)	REQUIREMENT	35.8	23.6	37.8	37.3	29.1	16.9	4.6	104.7	16.7	28.9	34.9	25.5	33	0
IRON UNF. TOT.	ACTUAL	9.3	7.57	20.8	18.3	7.28	8.8	12.1	168	12.5	15.3	14.7	10.4	25.4	
KG/DAY (FEUT)	REQUIREMENT	35.8	23.6	37.8	37.3	29.1	16.9	4.6	105	16.7	28.9	34.9	25.5	33	2
NICKEL UNF. TOT.	ACTUAL	39.3	10.9	16.6	14.2	11.1	5.42	1.48	14.7	3.51	8.97	10.8	10.2	12.3	
KG/DAY (NIUT)	REQUIREMENT	35.8	23.6	37.8	37.3	29.1	16.9	4.6	105	16.7	28.9	34.9	25.5	33	1
LEAD UNF. TOT.	ACTUAL	1.79	1.18	1.13	0.75	0.58	0.34	0.05	1.05	0.17	0.29	0.35	0.25	0.661	
KG/DAY (PBUT)	REQUIREMENT	35.8	23.6	37.8	37.3	29.1	16.9	4.6	105	16.7	28.9	34.9	25.5	33	0
PHENOLS UNF.REAC.	ACTUAL							0.00926	0.262	0.0334	0.0579			0.0906	
KG/ DAY (PHNOL)	REQUIREMENT							0.0926	2.09	0.334	0.579			0.775	0
PHOSPHOR UNF.TOT.	ACTUAL							0.231	7.33	0.501	1.45			2.38	
KG/DAY (PPUT)	REQUIREMENT							4.63	105	16.7	28.9			38.7	0
RESIDUE PARTIC.	ACTUAL	34.0	64.3	189	100	63.2	98.2	48.4	572	47.3	41.4	55.9	31.8	112	
KG/DAY (RSP)	REQUIREMENT	536	355	566	560	437	254	69	1571	251	434	524	382	495	0
SULPHATE UNF.REAC	ACTUAL	16519	10311	12159	11427	8508	5687	1361	40104	5678	10796	12371	8835	11980	
KG/DAY (SSO4UR)	REQUIREMENT														
ZINC UNF.TOT.	ACTUAL	0.36	0.47	0.38	0.37	0.58	0.12	0.14	0.63	0.1	0.17	0.21	0.51	0.337	
MG/L (ZNUT)	REQUIREMENT	35.8	23.6	37.8	37.3	29.1	16.9	4.6	105	16.7	28.9	34.9	25.5	33	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 92, FOR A TOTAL COMPLIANCE RECORD OF 96.7 % IN 1990.

000170-00-0(4) FALCONBRIDGE LTD. - NIR RD. FALCONBRIDGE REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		25431	37761	37714	29209	16927	4629	10471	16701	28945	35628	28626	24731	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.33	6.71	6.7	6.76	6.77	6.38	6.82	6.82	6.94	6.77	6.75	6.80	
(PH)	REQUIREMENT														
COPPER UNF.TOT.	CALC		0.254	1.12	0.439	0.321	0.261	0.169	0.077	0.088	0.306	0.358	0.569	0.36	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC		5.93	15.8	27.4	21.7	16.2	4.57	24.7	11.5	22.4	13.9	9.83	15.8	
KG /DAY (FEUT)	REQUIREMENT														
NICKEL UNF.TOT.	CALC		8.97	15.1	12.2	9.61	4.29	1.27	1.42	3.51	9.27	11.2	11.5	8.03	
KG /DAY (NIUT)	REQUIREMENT														
LEAD UNF.TOT.	CALC		0.763	1.13	1.13	0.691	0.339	0.0926	0.209	0.334	0.579	0.713	0.573	0.596	
KG /DAY (PBUT)	REQUIREMENT														
PHENOLS UNF-REAC	CALC		0.514	0.055	0.366	0.398	0.0364	0.00368	0.2	0.0306	0.0895	0.411	0.336	0.222	
KG /DAY (PHNOL)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC		1.98	2.77	3.97	3.26	1.09	0.203	1.09	0.46	2.24	2.96	0.720	1.89	
KG /DAY (PPUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC		127	189	189	86.2	38.7	43.7	56.4	42	40.9	57.2	37.4	82.5	
KG /DAY (RSP)	REQUIREMENT														
SULPHATE UNF.REAC	CALC		7982	8928	12003	10284	5461	507	4377	5208	15223	11636	8323	8176	
KG /DAY (SSO4UR)	REQUIREMENT														
ZINC UNF.TOT.	CALC		0.391	0.457	0.624	1.24	0.0677	0.119	0.0814	0.129	0.238	1.19	0.761	0.482	
KG /DAY (ZNUT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

EFFLUENT FROM CONTROL POINT 0100 (MISA) PREVIOUSLY REPORTED AS CONTROL POINT 0300 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Falconbridge Ltd. IMIS NO.: 0000990002
& PLANT LOCATION: Kidd Creek Mine, Metallurgical Site, Timmins

MOE REGION: Northeast DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 0594, 0591, 295

RECEIVING WATERBODY: DIRECT: man-made ditch
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Crushed ore is concentrated, smelted and refined into zinc, copper and gold. Sulphuric acid is made from sulphur dioxide

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of nickel, copper, zinc etc.

EFFLUENT TREATMENT: Effluent is limed and overflow (decant) is discharged.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa, 1977 (Federal)

EXCEEDANCES: Zinc (6), Suspeneded Solids (RSP) (1)

REMEDIAL ACTIONS: A computerized telemetry system was installed in 1990 to improve effluent quality control. An amendment to the discharge approval is pending and will address dilution ratios. Exceedances were attributed to high flows resulting from rainstorms.

COMMENTS: The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge was not acutely lethal to test fish. However, one of the remaining samples was determined acutely lethal. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 80.6 %. An audit sample tested by the MOE was determined acutely lethal with a 96 hour LC50 of 80.6 % effluent.

04/16/92

000099-00-0(2) FALCONBRIDGE LTD. - METALLURGICAL SITE TIMMINS REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	33369	35846	93892	89000	42279	44082	55046	27485	39233	62167	45342	35054	50233	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.9	11	10.4	10.2	11	10.4	10.9	11.5	10.9	10.8	11.6	11.7	10.9	
(PH)	GUIDELINE														0
ARSENIC UNF.TOT.	CALC	< 3.34	3.88	2.33	0.825	0.134	0.109	0.11	0.0629	0.106	0.148	0.0907	0.0863	0.936	
KG /DAY (ASUT)	GUIDELINE	16.7	17.9	46.9	44.5	21.1	22	27.5	13.7	19.6	31.1	22.7	17.5	25.1	0
COPPER UNF. TOT.	CALC	< 3.34												3.34	
KG /DAY (CUUT)	GUIDELINE														
IRON FIL. TOT.	CALC	< 3.34												3.34	
KG /DAY (FEFT)	GUIDELINE														
MERCURY UNF.TOT.	CALC	< 0.00334	0.00353	0.00759	0.0117	0.00507	0.00374	0.00374	0.00053	0.00333	0.00221	0.00484	0.00313	0.0044	
KG /DAY (HGUT)	GUIDELINE	0.03	0.0353	0.0759	0.117	0.0507	0.0374	0.0374	0.0053	0.0333	0.0221	0.0484	0.0313	0.0437	0
NH3-N FIL. REAC.	CALC	53.4												53.4	
KG /DAY (NNH3FR)	GUIDELINE														
LEAD FIL. TOT.	CALC	< 3.34												3.34	
KG /DAY (PBFT)	GUIDELINE	6.68												6.68	0
RESIDUE PARTIC.	CALC	< 367	932	1588	1463	225	215	276	159	211	463	469	776	595	
KG /DAY (RSP)	GUIDELINE	834	897	2385	2225	1057	1102	1413	687	982	1555	1133	877	1262	1
RESIDUE TOTAL	CALC	85058												85058	
KG /DAY (RST)	GUIDELINE														
SULPHATE FIL. REAC	CALC	49753												49753	
KG /DAY (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	CALC	4.67	32	122	94.7	14.1	37.0	83.7	9.75	9.19	11.4	26.9	13.9	38.3	
KG /DAY (ZNUT)	GUIDELINE	16.7	17.9	47.0	44.5	21.2	20.2	27.5	13.8	19.6	31.1	22.7	15.1	24.8	6

NOTE: PH-LIMITS 6.00 - 14.00 (FEDERAL REG.), # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 61, FOR A TOTAL COMPLIANCE RECORD OF 88.5 % IN 1990.

CUUT, FEFT, PBFT, RST, NNH3FR AND SSO4FR NOT MONITORED UNDER MISA MONITORING REGULATION.

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Kidd Creek Mine, Mine Site, Timmins

IMIS NO.: 0000990101

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0594, 0591, 295

RECEIVING WATERBODY: DIRECT: Kidd Creek
INDIRECT: Moose River

DESCRIPTION OF ACTIVITY: Mine site ore is crushed for further processing at the metallurgy site.

EFFLUENT CHARACTERISTICS: Tailings effluent contains dissolved metal salts of nickel, copper, zinc etc..

EFFLUENT TREATMENT: Settling ponds.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa, 1977 (Federal)

EXCEEDANCES: Suspeneded Solids (RSP) (1), Zinc (2)

REMEDIAL ACTIONS: Further dredging of the settling ponds was undertaken in 1991 to increase retention times.

COMMENTS: The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Minewater effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 60.9 and 80.6 %.

04/16/92

000099-01-0(1) FALCONBRIDGE LTD., KIDD CREEK MINE TIMMINS REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, MINEWATER 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		6163	13328	26363	18417	17475	12133	9400	17833	42025	23000	9567	17791	
M3 /DAY (FTFLOW)	GUIDELINE														
IRON FIL.TOT.	ACTUAL	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
MG/L (FEFT)	GUIDELINE														
NH3-N FIL.REAC	ACTUAL	5.8	10.1	8.6	2.6	2.1	3.3	2.4	3.8	2.2	2.1	2.6	3.4	4.08	
MG/L (NNH3FR)	GUIDELINE														0
PH	ACTUAL	9.6	9.5	9.3	11.1	11.1	10.6	10.1	10.9	10.9	10.8	9.4	11.4	10.4	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	36	12.2	
MG/L (RSP)	GUIDELINE	25	25	25	25	25	25	25	25	25	25	25	25	25	1
RESIDUE TOTAL	ACTUAL	784	1051	1032	442	375	481	596	706	866	721	570	722	696	
MG/L (RST)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL	338	473	444	142	133	220	253	319	358	317	288	292	298	
MG/L (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.22	0.18	3	0.3	0.3	0.3	0.3	0.3	0.1	0.2	6.8	0.1	1.0	
MG/L (ZNUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2

NOTE: PH-LIMITS 6.00 - 14.00 (FEDERAL REG.)

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 93.8 % IN 1990.

000099-01-0(1) FALCONBRIDGE LTD., KIDD CREEK MINE TIMMINS REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, MINEWATER 1990 MISA DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		6142	21350	27162	18954	18417	13550	8415	17017	27827	20533	10013	17216	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		10.3	10.6	11.4	11.4	10.7	10.5	11	10.3	10.3	10.4	11.8	10.8	
(PH)	GUIDELINE														
ZINC UNF.TOT.	CALC		4.02	92.1	17.9	27.4	15	17	5.7	10	63	106	4.2	32.9	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

FEFT, NNH3FR, RST, AND SSO4FR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Falconbridge Ltd. Lockerby Mine, Denison Twp.

IMIS NO.: 0001700202

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Mine water treated by ponds.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Minewater effluent was not acutely lethal to test fish.

12/16/91

000170-02-0(2) FALCONBRIDGE LTD. - LOCKERBY MINE ONAPING REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	982	563	1495	1436	1401	1136	1280	1009	1026	1520	2167	1744	1313	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.11	7.83	7.31	6.91	7.64	7.42	7.25	6.99	7.06	7.02	7.95	8.03	7.38	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	CALC	0.02	0.008	0.0186	0.0175	0.0108	0.0107	0.0206	0.00416	0.0235	0.0082	0.019	0.0256	0.0156	
KG /DAY (CUUT)	GUIDELINE	0.982	0.555	1.49	1.44	1.4	1.14	1.28	1.01	1.03	1.52	2.17	1.74	1.31	0
IRON UNF.TOT.	CALC	0.07	0.0434	0.297	0.0374	0.15	0.0461	0.0885	0.0167	0.0315	0.0399	0.38	0.0738	0.106	
KG /DAY (FEUT)	GUIDELINE	0.982	0.434	1.85	1.25	1.25	1.54	1.13	0.84	0.985	1.54	1.92	1.42	1.26	0
NICKEL UNF.TOT.	CALC	0.18	0.104	0.272	0.193	0.15	0.0625	0.105	0.066	0.0715	0.327	0.506	0.449	0.207	
KG /DAY (NIUT)	GUIDELINE	0.982	0.555	1.49	1.44	1.4	1.14	1.28	1.01	1.03	1.52	2.17	1.74	1.31	0
RESIDUE PARTIC.	CALC	4.52	2.81	7.47	7.18	3.79	1.58	1.65	1.41	2.37	1.78	3.2	1.99	3.31	
KG /DAY (RSP)	GUIDELINE	14.7	8.44	22.4	21.5	21	17.1	19.2	15.1	15.4	22.8	32.5	26.2	19.7	0
SULPHATE UNF.REAC	CALC	274	161	445	369	424	599	419	344	415	602	645	571	439	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 10.6, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60 , FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

EFFLUENT FROM CONTROL POINT 0100 (MISA) PREVIOUSLY REPORTED AS CONTROL POINT 0200 (IMIS).

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Falconbridge Ltd. IMISNO.:0001700301
& PLANT LOCATION: Moose Lake Wastewater Treatment System, Onaping Falls

MOE REGION: Northeast DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Moose Lake to Onaping River, to Vermillion River, to Spanish River.
INDIRECT: 125 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Extraction from ore into Nickel and Copper concentrates which are shipped to the smelter.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with limestone slurry prior to discharge.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (October 18, 1990) The present Certificate of Approval has the following limits: total suspended solids - 15 mg/L, iron - 1 mg/L, copper - 0.3 mg/L, nickel - 0.5 mg/L, and pH - 6.5 to 9.0. From January to October 1990, Guidelines for Environmental Control in Ontario Mineral Industry (1981) applied. During this time, the nickel loading set by Certificate of Approval was 10,724 kg/year.

EXCEEDANCES: Iron (1)

REMEDIAL ACTIONS: Treatment facilities were upgraded in 1990, to meet requirements of new C. of A. Lime treatment (instead of limestone) is being performed as a result of the changes.

COMMENTS: Lime treatment system installed 1990 has greatly reduced nickel loadings to Moose Creek. Total nickel discharge was 10,675 kg. Reporting of flow data is in question.

The data for four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge/Fecunis effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined not acutely lethal.

12/16/91

000170-03-0(1) FALCONBRIDGE LTD. STRATHCONA (MOOSE LAKE) ONAPING FALLS REPORT DATE: 10 JAN 92

CONTROL POINT: 0200, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	155339	22879	19966	67891	58522	53753	49489	48308		113	4893		48115	
M3/DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.15	9.2	8.02	10.2	8.45	8.08	8.1	7.41	7.1	7.35	6.79		7.99	
(PH)	GUIDELINE														0
COPPER UNF. TOT.	ACTUAL	1.6	0.24	3.19	1.36	0.88	2.69	1.48	0.48		0	0.10		1.2	
KG/DAY (CUUT)	GUIDELINE	155	22.9	20	67.9	58.5	53.8	49.5	48.3		0.113	4.89		48.1	0
IRON UNF. TOT.	ACTUAL	162	3.1	8.98	6.11	3.51	4.3	4.45	3.86		0.02	0.93		19.7	
KG/DAY (FEUT)	GUIDELINE	155	22.9	20	67.9	58.5	53.8	49.5	48.3		0.113	4.89		48.1	1
NICKEL UNF. TOT.	ACTUAL	249	7.4	20	21.1	21.1	10.8	8.41	8.21		0.02			38.4	
KG/DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C				S/C
RESIDUE PARTIC.	ACTUAL	683	239	160	611	170	53.8	49.5	77.3		0.27	3.08		205	
KG/DAY (RSP)	GUIDELINE	2330	343	299	1018	878	806	742	725		1.7	73		722	0
SULPHATE UNF.REAC	ACTUAL	68660	15163	6729	38291	26218	30048	27367	27439		64.3	728		24071	
KG/DAY (SSO4UR)	GUIDELINE														

NOTE: S/C - SEE COMMENTS, PH-LIMITS - SEE BELOW

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 41, FOR A TOTAL COMPLIANCE RECORD OF 97.6 % IN 1990.

TOTAL NICKEL DISCHARGE IN 1990 WAS 10,675 KG, WHICH IS WITHIN THE CERTIFICATE OF APPROVAL (1989) ANNUAL LIMIT OF 10,724 KG.

PRIOR TO OCTOBER 1990 PH LIMITS = 5.50 - 10.60; AS OF OCTOBER 1990 PH LIMITS = 6.50 - 9.00 (ESTABLISHED BY NEW CERTIFICATE OF APPROVAL).

REPORTING OF FLOW DATA IS IN QUESTION.

000170-03-0(1) FALCONBRIDGE LTD. STRATHCONA (MOOSE LAKE) ONAPING FALLS REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		23790	17747	63076	55183	34035	30525	29179		3509	29358	7519	29392	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		9.2	8.17	10.2	8.49	7.82	6.83	7.41	7.11	6.88	6.79	7.2	7.83	
(PH)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.293	0.766	1.64	0.872	0.707	0.866	0.189		0.0702	0.535	0.247	0.619	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	CALC		1.54	0.0891		6.54	0.584	3.28	1.1			0.799	0.00764	1.74	
KG /DAY (FEUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		7.89	13.5	19.5	17.1	5.21	5.34	1.67		0.544	11.3	1.1	8.31	
KG /DAY (NIUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		132	124	1115	163	36.3	30.5	87.7		38.6	98.7	11.1	184	
KG /DAY (RSP)	GUIDELINE														
SULPHATE UNF.REAC	CALC		8172	49		36485	6100	19460	7816			2219	48.9	10044	
KG /DAY (SSO4UR)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

EFFLUENT FROM CONTROL POINT 0100 (MISA) PREVIOUSLY REPORTED AS CONTROL POINT 0200 (IMIS).

REPORTING OF FLOW DATA IS IN QUESTION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Falconbridge Ltd. IMISNO.:0001700103
& PLANT LOCATION: Onaping Mine, Onaping Falls

MOE REGION: Northeast DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Onaping River to Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with sodium hydroxide.

DISCHARGE TYPE: Continuous from treatment system.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: The cause of the toxicity of this effluent may be a combination of high pH/ammonia. A proposal to divert this waste stream to the Moose Lake Treatment System, where increased retention time and pH control equipment should mitigate the problem, was submitted in 1991 and was approved in July 1991.

COMMENTS: The data for four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Discharge/ mine pond effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 17.3 - 68.8 %. An audit sample tested by the MOE was also determined as acutely lethal. The 96 hour LC50s was 47.4% effluent.

12/16/91

000170-01-0(3) FALCONBRIDGE LTD. - ONAPING MINE — ONAPING FALLS — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1023	1012	1421	1401	1087	799	791	869	876	851	1640	1012	1065	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.4	9.71	10.2	10.2	9.97	9.94	9.31	9.46	9.84	9.73	9.36	9.68	9.73	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.01	0.001	0.009	0.012	0.007	0.012	0.015	0.009	0.003	0.005	0.026	0.013	0.0102	
KG /DAY (CUUT)	GUIDELINE	1.02	1.01	1.42	1.4	1.09	0.799	0.791	0.869	0.876	0.851	1.64	1.01	1.06	0
IRON UNF.TOT.	ACTUAL	0.06	0.01	0.002		0.03	0.02	0.033	0.02	0.024	0.059	0.345	0.042	0.0538	
KG /DAY (FEUT)	GUIDELINE	1.02	0.66	1.92		1.48	0.935	0.835	0.935	1.040	1.190	1.79	1.04	1.07	0
NICKEL UNF.TOT.	ACTUAL	0.78	0.002	0.109	0.173	0.15	0.374	0.191	0.163	0.073	0.149	0.798	0.29	0.271	
KG /DAY (NIUT)	GUIDELINE	1.02	1.01	1.42	1.4	1.09	0.799	0.791	0.869	0.888	0.851	1.64	1.01	1.07	0
RESIDUE PARTIC.	ACTUAL	14.1	0.5	4.62	11.1	7.47	6.86	5.21	8.6	6.96	8.33	22.7	9.12	8.8	
KG /DAY (RSP)	GUIDELINE	15.4	15.2	21.3	21	16.3	12	11.9	13	13.1	12.8	24.6	15.2	16	0
SULPHATE UNF.REAC	ACTUAL	427	223	0.9		812	529	488	572	672	669	916	505	484	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 10.60, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 59 , FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

MISA MONITORING REGULATION REPORTING BEGAN ON FEBRUARY 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Fiberglas Canada Inc. Sarnia

IMISNO.: 0000270306

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3594

RECEIVING WATERBODY: DIRECT: Cole Drain
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: Insulation is produced from silicate sands

EFFLUENT CHARACTERISTICS: Contains trace processing agents such as phenols

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for nine of eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Main effluent was not acutely lethal to test fish. The remaining samples when tested, resulted in 96 hour LC50s > 100 % effluent. An audit sample tested by the MOE was also determined as non-lethal.

01/08/91

000027-03-0(6) FIBERGLAS CANADA INC. SARNIA REPORT DATE: 28 JAN 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6139	6175	5974	1687	5162	5244	5536	6382	6058	5832	5080	4749	5335	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.87	7.96	7.86	8.09	8.12	8.22	8.34	8.23	8.33	8.23	8.34		8.14	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	0.036	0.027	0.023	0.009	0.016	0.021	0.027	0.026	0.023	0.023	0.012	0.018	0.0218	
KG /DAY (PHNOL)	GUIDELINE	0.123	0.124	0.120	0.0336	0.103	0.105	0.111	0.127	0.121	0.117	0.102	0.095	0.107	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

REDUCED FLOW IN APRIL 1990 DUE TO SCHEDULED MAINTENANCE/INSPECTION PLANT SHUT-DOWN.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Fleet Industries Ltd.
& PLANT LOCATION: Fort Erie

IMISNO.: 0001570001

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 321

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River. Cooling water only
INDIRECT: Process discharge to municipal sewer.

DESCRIPTION OF ACTIVITY: Fabricator of aircraft parts.

EFFLUENT CHARACTERISTICS: Contains Total Suspended Solids.

EFFLUENT TREATMENT: Process wastewater is discharged to sanitary sewer and cooling water is discharged to the creek.

DISCHARGE TYPE: Cooling water is discharged to Frenchman's Creek.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company in compliance.

REMEDIAL ACTIONS: None require.

COMMENTS: Company discharges cooling water only.

04/16/92

000157-00-0(1) FLEET MFG COMPANY LTD — FORT ERIE — REPORT DATE: 14 FEB 92

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - INCLUDES CONTROL POINTS: 0100 0200 - 1990 DATA (GROSS) — DISCHARGED INTO: 02/004/ LAKE ONTARIO

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	931	1031	1031	1031	1031	1031	1031	1031	1031	1031	1031	1031	1022	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.45	7.6	7.55	8.05	8.15	7.85	8.1	8	8.1	8	8.2	8	7.92	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	1.7	2	3	1.7	2	2.6	1	1	2.6	5	1	0.66	2.02	
KG /DAY (BOD5)	GUIDELINE	14	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.4	0
CHROMIUM UNF.TOT.	ACTUAL	0.05	0.017	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0223	
KG /DAY (CRUT)	GUIDELINE	0.931	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.02	0
LEAD UNF.TOT.	ACTUAL	0.011	0.0044	0.002	0.003	0.0011	0.0011	0.016	0.002	0.001	0.0037	0.003	0.004	0.00436	
KG /DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.08	0.047	0.011	0.037	0.011	0.011	0.011	0.017	0.027	0.13	0.04	0.017	0.0366	
KG /DAY (PPUT)	GUIDELINE	0.931	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.02	0
RESIDUE PARTIC.	ACTUAL	0.7	1	0.7	1.4	2	1	0.7	0	0	0.7	0	3	0.933	
KG /DAY (RSP)	GUIDELINE	14	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.4	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000157-00-0(1) FLEET MFG COMPANY LTD — FORT ERIE — REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	269	369	369	369	369	369	369	369	369	369	369	369	360	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.7	7.7	8.1	8.4	8	8.1	8.1	8.2	8.2	8.3	8.1	8.03	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	0	0	0	0	0	0	0	0	0	0.4	0	0	0.0333	
KG /DAY (BOD5)	GUIDELINE	4.03	5.54	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.41	0
CHROMIUM UNF.TOT.	ACTUAL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
KG /DAY (CRUT)	GUIDELINE	0.269	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.361	0
LEAD UNF.TOT.	ACTUAL	0.004	0.0004	0.001	0.001	0.0004	0.0004	0.007	0.001	0	0.003	0.001	0.001	0.00168	
KG /DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.07	0.04	0.004	0.03	0.004	0.004	0.004	0.01	0.02	0.02	0.03	0.01	0.0205	
KG /DAY (PPUT)	GUIDELINE	0.269	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.361	0
RESIDUE PARTIC.	ACTUAL	0	0	0	0.7	0	0	0	0	0	0	0	0	0.0583	
KG /DAY (RSP)	GUIDELINE	4.03	5.54	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.41	0

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000157-00-0(1) FLEET MFG COMPANY LTD — FORT ERIE — REPORT DATE: 14 FEB 92

CONTROL POINT: 0200, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	662	662	662	662	662	662	662	662	662	662	662	662	662	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.5	7.4	8	7.9	7.7	8.1	7.9	8	7.8	8.1	7.9	7.81	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	1.7	2	3	1.7	2	2.6	1	1	2.6	4.6	1	0.66	1.99	
KG /DAY (BOD5)	GUIDELINE	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	0
CHROMIUM UNF.TOT.	ACTUAL	0.04	0.007	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.012	
KG /DAY (CRUT)	GUIDELINE	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0
LEAD UNF.TOT.	ACTUAL	0.007	0.004	0.001	0.002	0.0007	0.0007	0.009	0.001	0.001	0.0007	0.002	0.003	0.003	
KG /DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.01	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.11	0.01	0.007	0.016	
KG /DAY (PPUT)	GUIDELINE	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0
RESIDUE PARTIC.	ACTUAL	0.7	1	0.7	0.7	2	1	0.7	0	0	0.7	0	3	0.875	
KG /DAY (RSP)	GUIDELINE	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	0

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ford Motor Company of Canada Ltd. Niagara Falls

IMIS NO.: 0000020503

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 325

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacturing automotive glass.

EFFLUENT CHARACTERISTICS: Contains Total Suspended Solids, Oil and grease and trace pollutants. IMIS results are presented.

EFFLUENT TREATMENT: Conventional secondary sewage treatment plant and oil water separation.

DISCHARGE TYPE: Continuous two discharges, both to the Welland River (treated sanitary and contact cooling water) (control point 0300 & 0500).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor a increase in loading to the river. Rather it reflects a change in the method of calculation of the loading. Summary data were reported in previous years as NET data. The data in 1990 should not be compared to previous years.

Wastewater recirculation plan is being developed.

04/16/92

000002-05-0(3) FORD MOTOR COMPANY NIAGARA FALLS REPORT DATE: 14 FEB 92

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE DISCHARGED INTO: 02/004/5400 WELLAND RIVER

INCLUDES CONTROL POINTS: 0300 0500 - 1990 DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1731	2135	2954	2727	3181	3863	4090	4036	3636	3181	2727	1818	3007	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.75	7.45	7.8	7.85	7.1	6.75	7.6	7.9	7.7	7.7	7.35	8.1	7.59	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	4.7	11.2	29.5	9.71	17.8	6.95	4.91	1.68	6.55	1.91	2.73	5.09	8.56	
KG/DAY (BOD5)	GUIDELINE	26	32	44.3	40.9	47.7	57.9	36.8	36	32.7	28.6	40.9	27.3	37.6	0
NH4-N FIL.REAC	ACTUAL	0.172	1.73	0.508	0.584	0.884	0.348	1.01	0.393	0.182	0.0573	0.158	0.564	0.549	
KG/DAY (NNH4FR)	GUIDELINE	17.3	21.4	29.5	27.3	31.8	38.6	40.9	40.4	36.4	31.8	27.3	18.2	30.1	0
RESIDUE PARTIC.	ACTUAL	13.3	18.4	65	18.5	17.2	32.4	26.2	24.2	16.7	16.5	12.5	21.8	23.6	
KG/DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	2.82	12	21.1	4.91	4.45	7.96	5.32	5.67	3.64	3.18	2.73	3.27	6.42	
KG/DAY (SOLEXT)	GUIDELINE	26	32	44.3	40.9	47.7	57.9	61.4	60.5	54.5	47.7	40.9	27.3	45.1	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000002-05-0(3) FORD MOTOR COMPANY — NIAGARA FALLS — REPORT DATE: 14 FEB 92
CONTROL POINT: 0300,
1990 DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1091	1309	1773	1636	1909	2318	2454	2400	2182	1909	1636	1091	1809	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.7	8.1	8.2	7.3	6.8	7.6	7.9	7.7	7.7	7.4	8.3	7.69	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	2.4	7.85	17.7	4.25	7.64	2.32	4.91	1.68	6.55	1.91	1.64	2.18	5.09	
KG/DAY (BOD5)	GUIDELINE	16.4	19.6	26.6	24.5	28.6	34.8	36.8	36	32.7	28.6	24.5	16.4	27.1	0
NH4-N FIL.REAC	ACTUAL	0.153	1.57	0.319	0.376	0.554	0.209	0.908	0.36	0.153	0.0191	0.0818	0.535	0.436	
KG/DAY (NNH4FR)	GUIDELINE	10.9	13.1	17.7	16.4	19.1	23.2	24.5	24	21.8	19.1	16.4	10.9	18.1	0
RESIDUE PARTIC.	ACTUAL	12	11.8	35.5	13.1	5.73	18.5	14.7	14.4	6.55	11.5	11.5	17.5	14.4	
KG/DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	2.18	7.85	4.61	1.64	1.91	3.48	1.23	2.4	2.18	1.91	1.64	1.09	2.68	
KG/DAY (SOLEXT)	GUIDELINE	16.4	19.6	26.6	24.5	28.6	34.8	36.8	36	32.7	28.6	24.5	16.4	27.1	0

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000002-05-0(3) FORD MOTOR COMPANY — NIAGARA FALLS — REPORT DATE: 14 FEB 92
CONTROL POINT: 0500,
1990 DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	640	826	1181	1091	1272	1545	1636	1636	1454	1272	1091	727	1198	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	7.2	7.5	7.5	6.9	6.7					7.3	7.9	7.36	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	2.3	3.3	11.8	5.46	10.2	4.64					1.09	2.91	3.47	
KG/DAY (BOD5)	GUIDELINE	9.6	12.4	17.7	16.4	19.1	23.2					16.4	10.9	10.5	0
NH4-N FIL.REAC	ACTUAL	0.0192	0.157	0.189	0.207	0.331	0.139	0.0982	0.0327	0.0291	0.0382	0.0764	0.0291	0.112	
KG/DAY (NNH4FR)	GUIDELINE	6.4	8.26	11.8	10.9	12.7	15.5	16.4	16.4	14.5	12.7	10.9	7.27	12	0
RESIDUE PARTIC.	ACTUAL	1.28	6.61	29.5	5.46	11.4	13.9	11.5	9.82	10.2	5.09	1.09	4.36	9.18	
KG/DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0.64	4.13	16.5	3.27	2.54	4.48	4.09	3.27	1.45	1.27	1.09	2.18	3.75	
KG/DAY (SOLEXT)	GUIDELINE	9.6	12.4	17.7	16.4	19.1	23.2	24.5	24.5	21.8	19.1	16.4	10.9	18	0

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 40, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ford Motor Company of Canada Ltd. Assembly Plant, St. Thomas

IMIS NO.: 0000020404

MOE REGION: Southwest

DISTRICT: London

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 323

RECEIVING WATERBODY: DIRECT: Dodd Creek to Kettle Creek
INDIRECT: 38 Km to Lake Erie

DESCRIPTION OF ACTIVITY: Auto painting and assembly.

EFFLUENT CHARACTERISTICS: Contains suspended solids, zinc and biodegradable organics.

EFFLUENT TREATMENT: Domestic - Aerated activated sludge plant Industrial - Chemical batch followed by biological treatment and rapid sand filtration.

DISCHARGE TYPE: Intermittent through an on-shore outfall; weekend flow and pollutants drop off.

COMPANY LIMITS SET BY: ISC Criteria: Discharge requirement for zinc has been changed to 0.3 mg/L Phenol limit has been changed to 0.005 mg/L

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: An Engineering Consultant was commissioned in 1989 to upgrade the wastewater treatment facility. The sludge lagoon decommissioning which represents the first stage was completed in 1991.

COMMENTS: Process upgrading will continue to ensure that wastewater discharge meets criteria.

04/16/92

000002-04-0(4) FORD MOTOR COMPANY OF CANADA LIMITED ST. THOMAS REPORT DATE: 27 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9510	9548	7421	6759	7180	7501	5523	8342	6716	6208	7809	6425	7412	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.6	7.5	7.7	7.8	7.9	8	8.1	7.6	7.36	7	7.3	7.61	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	55.1	46.7	37.1	24.3	25	26.2	20.9	28.3	13.4	10.5	16.3	21.8	27.1	
KG /DAY (BOD5)	REQUIREMENT	95.1	95.5	74.2	67.6	71.8	75	55.2	83.4	67.2	62.1	78.1	64.3	74.1	0
CHEM. OX DEMAND	ACTUAL	376	311	324	277	310	386	342	225	205	145	165	208	273	
KG /DAY (COD)	REQUIREMENT	951	955	742	676	718	750	552	834	672	621	781	643	741	0
CHROMIUM UNF.TOT.	ACTUAL	1.3	1.1	0.742	0.33	0.18	0.15	0.05	0.33	0.1	0.3	0.7	0.3	0.465	
KG /DAY (CRUT)	REQUIREMENT	1.9	1.91	1.48	1.35	1.44	1.5	1.1	1.67	1.34	1.24	1.56	1.29	1.48	0
NH3-N TOTAL	ACTUAL	24.7	21.9	0.519	0.2	0.07	0.07	0.05		0.03	0.06	0.04		4.76	
KG /DAY (NNHTFR)	REQUIREMENT	47.6	47.7	37.1	33.8	35.9	37.5	27.6		33.6	31	39		37.1	0
PHENOLS UNF-REC	ACTUAL	0.019	0.010	0.007	0.003	0.007	0.008	0.006	0.008	0.027	0.006	0.008	0.006	0.010	
KG /DAY (PHNOL)	REQUIREMENT	0.048	0.048	0.007	0.034	0.036	0.038	0.028	0.042	0.034	0.031	0.039	0.032	0.035	0
PO4 FIL.REAC	ACTUAL	2.56	3.1	2.52	3.78	3.5	3	2.7	3.92	1.3	1.4	2	1.7	2.62	
KG /DAY (PPO4FR)	REQUIREMENT	9.51	9.55	7.42	6.76	7.18	7.5	5.52	8.34	6.72	6.21	7.81	6.43	7.41	0
RESIDUE PARTIC.	ACTUAL	50.4	81.1	23.0	26.3	28	33	22	61.7	36.9	37	21.8	28.9	37.5	
KG /DAY (RSP)	REQUIREMENT	143	143	111	101	108	113	82.8	125	101	93.1	117	96.4	111	0
ZINC UNF.TOT.	ACTUAL	1.23	0.76	0.816	0.7	0.57	0.4	0.2	0.67	0.3	0.4	0.7	0.51	0.60	
KG /DAY (ZNUT)	REQUIREMENT	2.85	2.87	2.22	2.03	2.16	2.25	1.65	2.51	2.01	1.86	2.34	1.94	2.22	0

NOTE: PH-LIMITS 6.50 - 8.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 107, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Ford Motor Canada of Canada Ltd. Windsor

IMIS NO.: 0000020107

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal Casting

SIC CODE: 294, 325

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Engine block and parts are cast in the iron foundry; parts are machined and assembled into engines and transmissions.

EFFLUENT CHARACTERISTICS: Contains iron, phenol and suspended solids.

EFFLUENT TREATMENT: Chemical coagulation, oil removal and sedimentation.

DISCHARGE TYPE: Continuous six days a week through a submerged outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (July 3,1987) Suspended solids requirement of 15mg/L.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Phenols (12), Suspeneded Solids (RSP) (5)

REMEDIAL ACTIONS: Phenol reduction program has resulted in a significant decrease in the phenol loading discharged. This program is continuing. Pollution abatement facilities for removing suspended solids are now in place and operating.

COMMENTS: The question of an appropriate phenol effluent requirement for this discharge has still not been resolved. The Ontario objective of 20 μg/L is not being met. However, this objective is not a legal requirement, but a guideline number. In-plant modifications and recirculation have resulted in the average monthly concentrations of phenols in the effluent being reduced.

The data for five of twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Foundry Combined effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 27.5 - 100 %. The remaining three samples, when tested, resulted in 96 hour LC50s > 100 % effluent.

01/08/91

000002-01-0(7) FORD MOTOR COMPANY OF CANADA, LIMITED WINDSOR REPORT DATE: 06 MAR 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	64745	65538	64066	49768	79801	81147	66405	83697	74637	83010	78213	55484	70543	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.8	7.8	7.6	6.61	6.94	7.05	6.88	6.95	6.9	6.99	7.03	7.19	
(PH)	GUIDELINE														0
CHEM. OX DEMAND	CALC	1652	1821	2002	1738	1571	1152	831	1179	883	1887	1637	773	1427	
KG /DAY (COD)	GUIDELINE														
FLUORIDE UNF.TOT.	ACTUAL	269	272	256	266									266	
KG /DAY (FFIDUT)	GUIDELINE														
IRON UNF.TOT.	CALC	23	32	45	19	80.2	61.2	30.9	34.7	35.7	54.8	61.8	29.7	42.3	
KG /DAY (FEUT)	REQUIREMENT	1101	1114	1089	846	1357	1379	1129	1423	1269	1411	1330	943	1199	0
PHENOLS UNF-REAC	CALC	20.7	12	11.2	9.5	31.9	21.1	13.9	20.9	13.6	18.7	17	9.05	16.6	
KG /DAY (PHNOL)	GUIDELINE	1.29	1.31	1.28	0.995	1.6	1.62	1.33	1.67	1.49	1.66	1.56	1.11	1.41	12
RESIDUE PARTIC.	CALC	799	1007	1298	759	2029	1349	641	831	799	889	1031	783	1018	
KG /DAY (RSP)	REQUIREMENT	971	983	961	747	1197	1217	996	1255	1120	1245	1173	832	1058	5
RESIDUE TOTAL	ACTUAL	14032	16144	16064	12204									14611	
KG /DAY (RST)	GUIDELINE														
SOLVENT EXTRACT.	CALC	55	61	64	47	375	392	188	177	112	190	108	56.7	152	
KG /DAY (SOLEXT)	GUIDELINE	971	983	961	747	1200	1224	1005	1252	1139	1260	1162	797	1058	0

NOTE: PH-LIMITS 5.50 - 9.50, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 72 % IN 1990.

MISA MONITORING REGULATION REPORTING BEGAN MAY 1990.
RST AND FFIDUT NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Gay Lea Foods Co-op Ltd. Teeswater

IMIS NO.: 0001000009

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Teeswater River
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Milk is made into cheese, butter or dried.

EFFLUENT CHARACTERISTICS: Contains organic compounds such as proteins, sugars etc.

EFFLUENT TREATMENT: Secondary.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE established guidelines.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

01/08/91

000100-00-0(9) GAY LEA FOODS COOPERATIVE LIMITED TEESWATER REPORT DATE: 27 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	66	69.6	104	38.3	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.5	7.28	7.499	7.7	7.57	7.66	7.73	7.6	7.66	7.66	7.4	7.57	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	0.082	0.049	0.049	0.049	0.098	0.049	0.122	0.078	0.049	0.218	0.306	0.369	0.127	
KG /DAY (BOD5)	GUIDELINE	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.99	1.04	1.56	0.575	0
RESIDUE PARTIC.	ACTUAL	0.144	0.060	0.066	0.084	0.166	0.129	0.191	0.222	0.12	0.744	0.442	0.938	0.276	
KG /DAY (RSP)	GUIDELINE	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.99	1.04	1.56	0.575	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000100-00-0(9) GAY LEA FOODS COOPERATIVE LIMITED TEESWATER REPORT DATE: 27 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	1.68	0.596	0.82	0.498	1	0.4	0.7	0.48	0.18	0.183	0.1	0.1	0.561	
MG/L (NNHTFR)	GUIDELINE														
PO4 FIL.REAC	ACTUAL	2.5	4.84	3.49	3.10	4.39	3.45	4.26	3.46	2.5	6.64	4.24	2.3	3.86	
MG/L (PPO4FR)	GUIDELINE														

****

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: G. E. Plastics Canada Ltd. Cobourg

IMIS NO.: 0000600007

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Formulation of ABS resins (plastics).

EFFLUENT CHARACTERISTICS: BOD, suspended solids, phosphorus.

EFFLUENT TREATMENT: Primary and secondary - extended aeration.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-003-85-006 July 23, 1985, #4-0172-89-906 April 24, 1990 (Limits are based on the average of twelve monthly samples).

Biochemical Oxygen Demand (BOD5)	25 mg/L	54 kg/day
Suspended solids (RSP)	25 mg/L	54 kg/day
Phosphorus (PPUT)	1 mg/L	2.16 kg/day
pH	5.5-9.5	

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Polishing filters were installed in mid 1990. Equalization tank was installed to replace secondary settling pond in effluent treatment system in 1991.

COMMENTS: Company is in compliance with its MOE Certificate of Approval yearly average loading/concentration requirements. This plant is subject to MISA, Organic Chemical Manufacturing Sector.

The data for six of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.1 - 80.6 %. The remaining three samples were determined not acutely lethal. An audit sample tested by MOE was determined non-lethal.

11/15/91

000060-00-0(7) G.E. PLASTICS CANADA INC., COBOURG REPORT DATE: 13 JAN 92
CONTROL POINT: 0100, 1990 DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	2109	1759	1808	1744	1902	1666	1526	1793	1543	1622	1459	1396	1694	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	28	52	12	7	10	51	9	3	7	13	9	18	18.3	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	54	S/C
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	ACTUAL	0.14	0.64	1.2	0.27	0.3	2.83	0.21	0.36	0.09	0.27	0.32	0.19	0.568	
	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	2.16	S/C
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	98	50	46	24.2	18.1	139	15.9	8.5	16.9	27.9	12	25.7	40.2	
	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	54	S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000060-00-0(7) G.E. PLASTICS CANADA INC., COBOURG REPORT DATE: 07 JAN 92
CONTROL POINT: 0100, 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	2109	1759	1808	1744	1902	1666	1526	1793	1543	1622	1459	1397	1694	
	GUIDELINE														
PH (PH)	ACTUAL	8.03	8.1	8.04	8.1	7.9	7.72	7.66	7.46	7.62	7.58	7.74	7.95	7.83	
	GUIDELINE														
BOD 5 DAY KG/DAY (BOD5)	ACTUAL										13.5	9	18	13.5	
	REQUIREMENT														
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	ACTUAL	0.138	0.624	1.2	0.274	0.3	2.83	0.199	0.31	0.105	0.273	0.319	0.187	0.564	
	REQUIREMENT														
RESIDUE PARTIC. KG/DAY (RSP)	ACTUAL	61.7	55.5	46.1	26.8	18.5	135	16.6	9.26	12.7	34	15.8	45.6	39.8	
	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: General Chemical Canada Ltd Amherstburg

IMIS NO.: 0000010009

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Soda ash (sodium carbonate) is made from common salt (sodium chloride).

EFFLUENT CHARACTERISTICS: Contains inorganic salts (chlorides, carbonates).

EFFLUENT TREATMENT: By-product recovery and sedimentation.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Total allowable chloride discharges = 2.36×10^8 kilograms per year, with a daily maximum of 1.361×10^6 kilograms per day, fluorides 200 kg/day.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Suspeneded Solids (RSP) (12): at control point 0100

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring and data at control point 0200 should not be compared to the net loadings of IMIS in previous years. The reported increase in loadings at control point 0200 does not imply a decrease in the effluent quality nor an increase in loading to the river.

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the North Drain effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.1 - 41.8 %. An audit sample tested by the MOE was also determined acutely lethal with a 96 hour LC50 of 14.1 % effluent.

The data for seven of ten trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Main Drain effluent was not acutely lethal to test fish. The remaining samples, when tested, resulted in 96 hour LC50s > 100 % effluent. An audit sample tested by the MOE was also determined as non-lethal.

04/23/92

000001-00-0(9) GENERAL CHEMICAL CANADA LTD. AMHERSTBURG REPORT DATE: 28 JAN 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	12761	14299	17418	19450	18609	17792	13110	10739	12065	17027	16260	14025	15296	
M3 /DAY (FTFLOW)	GUIDELINE														
CHLORIDE UNF.REAC	CALC	611382	624509	737385	936869	896543	847044	678095	538948	509161	762133	825868	721902	724153	
KG /DAY (CLIDUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
FLUORIDE UNF. REAC	CALC	30.9	30.9	39.2	48	44.4	42.9	27.5	10.6	21.9	44.3	36.9		34.3	
KG/DAY (FFIDUR)	REQUIREMENT	200	200	200	200	200	200	200	200	200	200	200		200	0
NH3-N TOTAL	CALC	137	73.7	79.3	88.7	73.9	56.4	37.2	47.5	57.1	88.2	108		77	
KG/DAY (NNHTFR)	GUIDELINE														
RESIDUE PARTIC.	CALC	885	729	667	900	560	476	274	324	580	920	663	939	660	
KG /DAY (RSP)	GUIDELINE	191	214	261	292	279	267	197	161	181	255	244	210	229	12

NOTE: S/C - SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 65.7 % IN 1990.

000001-00-0(9) GENERAL CHEMICAL CANADA LTD. AMHERSTBURG REPORT DATE: 06 MAR 92

CONTROL POINT: 0200, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	181821	174957	178367	182064	225001	221712	258752	247452	225720	223821	205459	175528	208388	
M3 /DAY (FTFLOW)	GUIDELINE														
CHLORIDE UNF.REAC	CALC	26594	20554	19476	15784	17371	16076	12650	11940	24638	30663	24662	35296	21309	
KG /DAY (CLIDUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
FLUORIDE UNF. REAC	CALC	21.9	19.4	20.2	18.3	22	23.3	28	24.9	23.7	27.5	23.4		23	
KG/DAY (FFIDUR)	REQUIREMENT	200	200	200	200	200	200	200	200	200	200	200		200	0
NH3-N TOTAL	CALC	424	903	1650	169	296	237	319	581	1054	275	451		578	
KG/DAY (NNHTFR)	GUIDELINE														
RESIDUE PARTIC.	CALC	2895	7028	3499	3858	9500	5194	5952	5136	8951	7931	9168	8782	6491	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C - SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

CONTROL POINT 0200 PREVIOUSLY REPORTED AS NET DATA, AND SHOULD NOT BE COMPARED TO CURRENT GROSS DATA.

ALKT, NNHTUR, RST ARE NOT MONITORED UNDER MISA MONITORING REGULATION. FFIDUR PREVIOUSLY REPORTED AS FFIDUT.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION:	General Motors of Canada Ltd. St. Catharines	IMISNO.: 0001630003
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Metal Casting	SIC CODE: 323
RECEIVING WATERBODY:	DIRECT: Welland Canal INDIRECT: 9.2 km to Lake Ontario	

DESCRIPTION OF ACTIVITY: Coke and iron (pigs and scrap) are charged to a cupola to be processed into iron and cast as engine parts.

EFFLUENT CHARACTERISTICS: Contains metals, phenol and suspended solids

EFFLUENT TREATMENT: Secondary treatment, Rotating Biological Contactors.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE GUIDELINES:

EXCEEDANCES: Phenols (8), Suspeneded Solids (RSP) (1)

REMEDIAL ACTIONS: Secondary treatment consisting of Rotating Biological Contactors was installed in 1988. Compliance has been demonstrated when the equipment has been properly operated, however, some mechanical equipment failures have occurred. The discharge was in compliance in 1990 until a further equipment failure occurred. The equipment was replaced and commissioning commenced in January 1991.

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor a increase in loading to the river. Rather it reflects a change in the method of calculation of the loading. Summary data were reported in previous years as NET data. The data in 1990 should not be compared to previous years.

The data for five of eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Foundry Combined effluent was not acutely lethal to test fish. The remaining samples, when tested, resulted in 96 hour LC50s > 100 % effluent.

03/08/91

000163-00-0(3) GENERAL MOTORS OF CANADA LTD. ST CATHARINES REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA (NET DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	125552	124358	123873	129618									125849	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL		429	359	207									332	
KG /DAY (BOD5)	GUIDELINE		1865	1858	1944									1889	0
NH3-N TOTAL	ACTUAL		116	143	123									127	
KG /DAY (NNHTFR)	GUIDELINE														
K'DAHL N TOTAL	ACTUAL		172	165	182									173	
KG /DAY (NNTKFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	38.4	31.6	40.7	12.9									30.9	
KG /DAY (PHNOL)	GUIDELINE	2.51	2.49	2.48	2.59									2.52	4
PHOSPHOR UNF.TOT.	ACTUAL		1.24	3.12	2.20									2.19	
KG /DAY (PPUT)	GUIDELINE		124	124	130									126	0
RESIDUE FILTERED	ACTUAL	2159	7399	4707	25599									9966	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7382	1368	173	0									2231	
KG /DAY (RSP)	GUIDELINE	1883	1865	1858	1944									1888	1
SOLVENT EXTRACT.	ACTUAL	58.8	0	24.8	64.8									37.1	
KG /DAY (SOLEXT)	GUIDELINE	1883	1865	1858	1944									1888	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 72% IN 1990.

NO DATA AVAILABLE FOR JANUARY 1990; BOD5, NNHTFR, NNTKFR, PPUT DUE TO SAMPLING PROBLEMS

THIS COMPANY BEGAN REPORTING GROSS DATA MAY 1990, UNDER THE MISA MONITORING REGULATION PROGRAM.

000163-00-0(3) GENERAL MOTORS OF CANADA LTD. ST CATHARINES REPORT DATE: 23 JAN 92

CONTROL POINT: 1000, FINAL DISCHARGE 1990 MISA DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL					162418	161166	162897	156758	153485	143279	120240	101850	145262	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	CALC					17.1	148	50.2	56.8	139	128	70.8	74.4	85.5	
KG /DAY (NNHTFR)	GUIDELINE														
K'DAHL N TOTAL	CALC						416			210			151	259	
KG /DAY (NNTKUR)	GUIDELINE														
PHENOLS UNF-REAC	CALC					5.09	3.09	2.22	1.63	1.99	4.56	7.92	5.83	4.04	
KG /DAY (PHNOL)	GUIDELINE					3.22	3.26	3.28	3.12	2.99	2.78	2.4	2.04	2.89	4
PHOSPHOR UNF.TOT.	CALC					14.6	6.6	7.43	28.2	4.13	7.82	33.5	12.1	14.3	
KG /DAY (PPUT)	GUIDELINE					162	162	165	162	157	143	123	104	147	0
RESIDUE PARTIC.	CALC					5942	3895	3890	7381	1098	536	392	600	2967	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC					272	393	500	235	150	139	172	187	256	
KG /DAY (SOLEXT)	GUIDELINE					2419	2442	2451	2340	2246	2088	1803	1544	2167	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 32, FOR A TOTAL COMPLIANCE RECORD OF 87.5 % IN 1990.

EFFLUENT FROM CONTROL POINT 1000 (MISA), WAS PREVIOUSLY REPORTED AS 0100 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Glen Ayr Kitten Mills, Village of Lanark

IMIS NO.: 0104210000

MOE REGION: Southeast

DISTRICT: Ottawa

INDUSTRIAL SECTOR: Textile

SIC CODE: 1821

RECEIVING WATERBODY: DIRECT: Clyde River
INDIRECT:

DESCRIPTION OF ACTIVITY: Washing of knitted materials.

EFFLUENT CHARACTERISTICS: Washwater containing detergents with elevated BOD, COD and suspended solids.

EFFLUENT TREATMENT: Dual cartridge filters on effluent discharge.

DISCHARGE TYPE: Batch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (8), Suspeneded Solids (RSP) (2)

REMEDIAL ACTIONS: Control Order will be issued in 1992.

COMMENTS: Process changes implemented in 1990 failed to resolve problems.

01/10/92

010421-00-0(0) GLEN AYR KITTEN MILLS LTD. LANARK REPORT DATE: 2 DEC 91

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2.05	1.91	3.30	3.21	4.67	2.91	2.97	1.37	2.84	3.01	3.20	1.42	2.74	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.05	6.73	6.39	7.28	7.25	7.47	7.03	7.61	7.38	8.1	7.9	7.3	7.29	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	0.051	0.066	0.016	0.144	0.855	0.0049	0.1	0.042	0.039	0.129	0.035	0.066	0.129	
KG /DAY (BOD5)	GUIDELINE	0.031	0.029	0.049	0.048	0.07	0.044	0.045	0.02	0.043	0.045	0.048	0.021	0.041	8
CHEM. OX DEMAND	ACTUAL	0.208	0.156	0.359	0.719	1.06	0.4769	0.754	0.206	0.249	0.789	0.175	0.326	0.457	
KG /DAY (COD)	GUIDELINE														
NH3-N UNF.REAC	ACTUAL	0.0004	0.0002	0.001	0.0003	0.0004	0.0002	0.002	0.001	0.0002	0.0003	0.0003	0.0003	0.001	
KG /DAY (NNH3UR)	GUIDELINE	0.02	0.019	0.033	0.032	0.047	0.029	0.03	0.014	0.028	0.03	0.032	0.014	0.027	0
KJELDAHL ORGANIC	ACTUAL	0.003	0.003	0.0003	0.0003	0.0004	0.0002	0.0002	0.0001	0.0002	0.00003	0.00003	0.0001	0.001	
KG /DAY (NNKUR)	GUIDELINE														
NO2-N UNF.REAC	ACTUAL	0.0002	0.0002	0.009	5.42	0.004	0.002	0.0003	0.0002	0.0007	0.0003	0.0003	0.0001	0.453	
KG /DAY (NNO2UR)	GUIDELINE														
NO3-N UNF.REAC	ACTUAL	0.0002	0.0002	0.001	0.006	0.0004	0.010	0.017	0.004	0.0002	0.005	0.004	0.336	0.032	
KG /DAY (NNO3UR)	GUIDELINE														
PO4 FIL.REAC	ACTUAL	0.001	0.0002	0.001	0.001	0.002	0.0002	0.004	0.0001	0.0001	0.0005	0.0003	0.0006	0.001	
KG /DAY (PPO4FR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.002	0.0007	0.002	0.002	0.003	0.001	0.004	0.001	0.0003	0.0005	0.0003	0.001	0.001	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0.026	0.014	0.039	0.022	0.074	0.038	0.074	0.001	0.019	0.019	0.003	0.011	0.028	
KG /DAY (RSP)	GUIDELINE	0.031	0.029	0.049	0.048	0.07	0.044	0.045	0.02	0.043	0.045	0.048	0.021	0.041	2

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 79% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Haley Industries
& PLANT LOCATION: Haley

IMISNO.: 0058840000

MOE REGION: Southeast

DISTRICT: Pembroke

INDUSTRIAL SECTOR: Metal Casting

SIC CODE: 296, 298

RECEIVING WATERBODY: DIRECT: McLarens Creek
INDIRECT: Ottawa River

DESCRIPTION OF ACTIVITY: Produce aluminum and magnesium castings for aircraft industry.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Neutralization, and settling.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-062-86-006 (October 21, 1986) establishes criteria for parameters monitored.

EXCEEDANCES: Company exceeded criteria for several parameters.

REMEDIAL ACTIONS: Consultants hired to design new wastewater treatment plant to meet Certificate of Approval requirements. New treatment plant will be operational in 1993. Haley submitted an application for a Certificate of Approval for a new wastewater treatment system in 1992.

COMMENTS: The data for five of seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the East Process Sewer effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.1 - 89.4 % effluent. The remaining two samples, when tested, resulted in 96 hour LC50s > 100 % effluent.

01/10/92

005884-00-0(0) HALEY INDUSTRIES LTD.
CONTROL POINT: 0100, HALEY
REPORT DATE: 10 DEC 91

FLOW/LOADING PARAMETERS		1990 DATA JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	265	265	265	265	168	184	234	123	115	103	95	69	179	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.16	8.85	12.7	11.9	10.0	9.4	9	8.5	8.5	8.8	9.3	9.1	9.60	
(PH)	REQUIREMENT														
SILVER UNF.TOT.	ACTUAL	0.023	0.015	0.004	0.006									0.012	
KG /DAY (AGUT)	REQUIREMENT	0.0003	0.0003	0.0003	0.0003									0.0003	4
ALUMINUM UNF.TOT.	ACTUAL	0.042	0.059	0.08	0.025									0.052	
KG /DAY (ALUT)	REQUIREMENT	0.07	0.07	0.07	0.07									0.07	1
BOD 5 DAY	ACTUAL	22.3	10.1	3.84	12.6						36.7	38.2	11.5	19.3	
KG /DAY (BOD5)	REQUIREMENT	1	1	1	1						1	1	1	1	7
CHROMIUM UNF.TOT.	ACTUAL	0.02	0.032	0.026	0.02									0.025	
KG /DAY (CRUT)	REQUIREMENT	0.04	0.04	0.04	0.04									0.04	0
COPPER UNF.TOT.	ACTUAL	0.013	0.032	0.028	0.01									0.021	
KG /DAY (CUUT)	REQUIREMENT	0.002	0.002	0.002	0.002									0.002	4
IRON UNF.TOT.	ACTUAL	0.048	0.212	0.33	0.035									0.156	
KG /DAY (FEUT)	REQUIREMENT	0.06	0.06	0.06	0.06									0.06	2
FLUORIDE UNF.TOT.	ACTUAL	1.99	3.72	4.9	5.09									3.93	
KG /DAY (FFIDUT)	REQUIREMENT	0.4	0.4	0.4	0.4									0.4	4
NICKEL UNF.TOT.	ACTUAL	0.003	0.013	0.013	0.013									0.011	
KG /DAY (NIUT)	REQUIREMENT	0.0006	0.0006	0.0006	0.0006									0.0006	4
NH3-N UNF.REAC	ACTUAL	0.872	1.31	1.05	3.91									1.79	
KG /DAY (NNH3UR)	REQUIREMENT	0.012	0.012	0.012	0.012									0.012	4
LEAD UNF.TOT.	ACTUAL	0.012	0.039	0.027	0.013									0.023	
KG /DAY (PBUT)	REQUIREMENT	0.0026	0.0026	0.0026	0.0026									0.0026	4
PHENOLS UNF-REAC	ACTUAL	0.003	0.003	0.0005	0.0005									0.002	
KG /DAY (PHNOL)	REQUIREMENT	0.008	0.008	0.008	0.008									0.008	0
RESIDUE FILTERED	ACTUAL	457	585	1407	540									747	
KG /DAY (RSF)	REQUIREMENT	645	645	645	645									645	1
RESIDUE PARTIC.	ACTUAL	7.68	46.4	43.5	51.6									37.3	
KG /DAY (RSP)	REQUIREMENT	2.46	2.46	2.46	2.46									2.46	4
SOLVENT EXTRACT.	ACTUAL	0.106	0.123	0.57	0.25									0.262	
KG /DAY (SOLEXT)	REQUIREMENT	0.84	0.84	0.84	0.84									0.84	0
SULPHITE UNF.REAC	ACTUAL	30.1	30.0	194	43		182	307	202	3.91	104	148	35.1	116	
KG /DAY (SSITUR)	REQUIREMENT	0.12	0.12	0.12	0.12		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	11

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005884-00-0(0) HALEY INDUSTRIES LTD. HALEY REPORT DATE: 10 DEC 91

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
SULPHATE UNF.REAC	ACTUAL	153	144	338	141	204	229	208	255	143	119	167	89.2	183	
KG /DAY (SSO4UR)	REQUIREMENT	152	152	152	152	152	152	152	152	152	152	152	152	152	7
ZINC UNF.TOT.	ACTUAL	0.013	0.068	0.07	0.02									0.043	
KG /DAY (ZNUT)	REQUIREMENT	0.023	0.023	0.023	0.023									0.023	2

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 59 OUT OF 86, FOR A TOTAL COMPLIANCE RECORD OF 31.4 % IN 1990.

THIS COMPANY BEGAN REPORTING DATA UNDER THE MISA MONITORING REGULATION MAY 1990.

005884-00-0(0) HALEY INDUSTRIES LTD. HALEY REPORT DATE: 10 DEC 91

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
SILVER UNF.TOT.	ACTUAL	0.085	0.056	0.016	0.022									0.045	
MG/L AS AG	REQUIREMENT														
ALUMINUM UNF.TOT.	ACTUAL	0.16	0.22	0.3	0.09									0.193	
MG/L AS AL	REQUIREMENT	0.11	0.11	0.11	0.11									0.11	3
BOD 5 DAY	ACTUAL	84	38	14.5	47.5						305.6	305.5	255	150	
MG/L AS O (BOD5)	REQUIREMENT	1.63	1.63	1.63	1.63						1.63	1.63	1.63	1.63	7
CHROMIUM UNF.TOT.	ACTUAL	0.075	0.12	0.1	0.08									0.094	
MG/L AS CR	REQUIREMENT	0.067	0.067	0.067	0.067									0.067	4
COPPER UNF.TOT.	ACTUAL	0.05	0.12	0.105	0.05									0.081	
MG/L AS CU	REQUIREMENT														
IRON UNF.TOT.	ACTUAL	0.18	0.8	1.25	0.13									0.59	
MG/L AS FE	REQUIREMENT	0.1	0.1	0.1	0.1									0.1	4
FLUORIDE UNF.TOT.	ACTUAL	7.53	14.1	18.5	19.2									14.8	
MG/L (FFIDUT)	REQUIREMENT	0.65	0.65	0.65	0.65									0.65	4
TEMP RISE	ACTUAL	3	2	2	2	3	2	0.9	1.8	0.65	33	4.4	0	4.56	
DEG.C (FWTINC)	REQUIREMENT	5	5	5	5	5	5	5	5	5	5	5	5	5	1
NICKEL UNF.TOT.	ACTUAL	0.01	0.05	0.05	0.05									0.04	
MG/L AS NI	REQUIREMENT	0.01	0.01	0.01	0.01									0.01	3
NH3-N UNF.REAC	ACTUAL	3.29	4.93	3.96	14.73									6.73	
MG/L AS NH3	REQUIREMENT	0.02	0.02	0.02	0.02									0.02	4
LEAD UNF.TOT.	ACTUAL	0.045	0.15	0.1	0.05									0.086	
MG/L AS PB	REQUIREMENT														
PH	ACTUAL	9.16	8.85	12.7	11.9	10.6	9.47	9.05	8.98	8.54	8.97	9.25	8.68	9.68	
(PH)	REQUIREMENT														
PHENOLS UNF-REAC	ACTUAL	0.013	0.013	0.002	0.002									0.008	
MG/L PHENOL	REQUIREMENT	0.013	0.013	0.013	0.013									0.013	0
RESIDUE FILTERED	ACTUAL	1724	2209	5310	2034									2819	
MG/L (RSF)	REQUIREMENT	1133	1133	1133	1133									1133	4
RESIDUE PARTIC.	ACTUAL	29	175	163	195									140	
MG/L (RSP)	REQUIREMENT	4.01	4.01	4.01	4.01									4.01	4
SOLVENT EXTRACT.	ACTUAL	0.4	0.46	2.15	0.95									0.99	
MG/L (SOLEXT)	REQUIREMENT	1.37	1.37	1.37	1.37									1.37	1
SULPHITE UNF.REAC	ACTUAL	114	113	731	162		444	1649	202	23	365	1188	780	524	
MG/L AS SO2	REQUIREMENT	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	11

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005884-00-0(0) HALEY INDUSTRIES LTD. HALEY REPORT DATE: 10 DEC 91

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
SULPHATE UNF.REAC	ACTUAL	579	542	1274	531	1133	560	1117	1063	841	988	1337	1981	995	
MG/L AS SO4	REQUIREMENT	248	248	248	248	248	248	248	248	248	248	248	248	248	12
ZINC UNF.TOT.	ACTUAL	0.05	0.26	0.265	0.07									0.161	
MG/L AS ZN	REQUIREMENT	0.038	0.038	0.038	0.038									0.038	4

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 66 OUT OF 86, FOR A TOTAL COMPLIANCE RECORD OF 23% IN 1990.

THIS COMPANY BEGAN REPORTING DATA UNDER THE MISA MONITORING REGULATION MAY 1990.

005884-00-0(0) HALEY INDUSTRIES LTD. HALEY REPORT DATE: 11 DEC 91
CONTROL POINT: 0200, COMBINED EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL					168	184	234	123	115	103	95	69	136	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL					10	9.4	9	8.53	8.5	8.79	9.31	9.08	9.08	
(PH)	REQUIREMENT														
SILVER UNF.TOT.	CALC					0.026	0.0884	0.0198	0.0335	0.0247	0.0532	0.047	0.049	0.0427	
KG /DAY (AGUT)	REQUIREMENT					0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	8
ALUMINUM UNF.TOT.	CALC					0.381	0.885	0.323	0.113	0.446	0.096	0.21	0.118	0.322	
KG /DAY (ALUT)	REQUIREMENT					0.0185	0.0203	0.0257	0.0136	0.0126	0.0114	0.0104	0.00756	0.015	8
CHROMIUM UNF.TOT.	CALC					0.126	0.377	0.114	0.055	0.216	0.155	0.0788	0.0372	0.145	
KG /DAY (CRUT)	REQUIREMENT					0.0113	0.0124	0.0157	0.00826	0.00768	0.00692	0.00634	0.0046	0.00914	8
COPPER UNF.TOT.	CALC					0.058	0.114	0.126	0.0492	0.134	0.093	0.0778	0.0358	0.0859	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC					3.77	3.39	1.34	0.91	4.25	531	2.49	0.795	68.5	
KG /DAY (FEUT)	REQUIREMENT					0.0168	0.0184	0.0234	0.0123	0.0115	0.0103	0.00947	0.00687	0.0136	8
NICKEL UNF.TOT.	CALC					0.00452	0.00598	0.00501	0.00282	0.04	0.00457	0.00273	0.00165	0.00841	
KG /DAY (NIUT)	REQUIREMENT					0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	8
LEAD UNF.TOT.	CALC					0.006	0.0171	0.00986	0.0039	0.00795	0.0102	0.00446	0.00611	0.0082	
KG /DAY (PBUT)	REQUIREMENT					0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	8
PHENOLS UNF-REAC	CALC					0.012	0.00307	0.00459	0.0062	0.000942	0.00108	0.00137	0.00323	0.00406	
KG /DAY (PHNOL)	REQUIREMENT					0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.00800	1
RESIDUE PARTIC.	CALC					75.6	66.6	48.7	33.4	36.9	29.1	39.1	19.8	43.7	
KG /DAY (RSP)	REQUIREMENT					0.675	0.739	0.938	0.494	0.46	0.414	0.38	0.276	0.547	8
SOLVENT EXTRACT.	CALC					0.478	0.158	0.235	0.186	0.16	0.408	0.144	0.0778	0.231	
KG /DAY (SOLEXT)	REQUIREMENT					0.231	0.253	0.32	0.169	0.157	0.141	0.13	0.0941	0.187	5
ZINC UNF.TOT.	CALC					0.12	0.454	0.162	0.0608	0.167	0.0928	0.112	0.0566	0.153	
KG /DAY (ZNUT)	REQUIREMENT					0.0064	0.007	0.00889	0.00468	0.00436	0.00392	0.0036	0.00261	0.00518	8

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 70 OUT OF 80, FOR A TOTAL COMPLIANCE RECORD OF 12.5 % IN 1990.

CONTROL POINT 0200 (MISA) ALSO CONTAINS THE EFFLUENT FROM THE PREVIOUSLY REPORTED CONTROL POINT 0100 (IMIS).

005884-00-0(0) HALEY INDUSTRIES LTD. — HALEY — REPORT DATE: 11 DEC 91

CONTROL POINT: 0200, COMBINED EFFLUENT — 1990 MISA DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL					168	184	234	123	115	103	95	69	136	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL					10	9.4	9	8.53	8.5	8.79	9.31	9.08	9.08	
(PH)	REQUIREMENT														
SILVER UNF.TOT.	ACTUAL					144	428	88.1	132	170	441	410	523	292	
UG/L (AGUT)	REQUIREMENT														
ALUMINUM UNF.TOT.	ACTUAL					2075	4100	1419	772	2755	749	1878	1695	1930	
UG/L (ALUT)	REQUIREMENT					110	110	110	110	110	110	110	110	110	8
CHROMIUM UNF.TOT.	ACTUAL					703	1841	495	537	1338	1190	678	632	927	
UG/L (CRUT)	REQUIREMENT					67	67	67	67	67	67	67	67	67	8
COPPER UNF.TOT.	ACTUAL					333	556	528	350	871	645	676	694	582	
UG/L (CUUT)	REQUIREMENT														
IRON UNF.TOT.	ACTUAL					21.2	16.3	6.03	5.98	25.9	4075	22.8	10.7	523	
MG/L (FEUT)	REQUIREMENT					0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	8
NICKEL UNF.TOT.	ACTUAL					30.8	29.2	22.1	20	252	34	24.2	26.2	54.8	
UG/L (NIUT)	REQUIREMENT					10	10	10	10	10	10	10	10	10	8
LEAD UNF.TOT.	ACTUAL					33.8	83.3	40.7	32.3	53.8	72	40.4	70.8	53.4	
UG/L (PBUT)	REQUIREMENT														
PHENOLS UNF-REAC	ACTUAL					70.8	20	24	59.8	12.9	17.3	27.4	80.8	39.1	
UG/L PHENOL	REQUIREMENT					13	13	13	13	13	13	13	13	13	7
RESIDUE PARTIC.	ACTUAL					429	334	194	266	265	239	376	398	313	
MG/L (RSP)	REQUIREMENT					4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	8
SOLVENT EXTRACT.	ACTUAL					33.2	0.8	1.06	1.24	1.07	3.21	1.2	1.3	5.38	
MG/L (SOLEXT)	REQUIREMENT					1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	2
ZINC UNF.TOT.	ACTUAL					708	2108	712	368	1037	661	995	865	932	
UG/L (ZNUT)	REQUIREMENT					38	38	38	38	38	38	38	38	38	8

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 57 OUT OF 64, FOR A TOTAL COMPLIANCE RECORD OF 10.9 % IN 1990.

CONTROL POINT 0200 (MISA) ALSO CONTAINS THE EFFLUENT FROM THE PREVIOUSLY REPORTED CONTROL POINT 0100 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION:	Hemlo Gold Mines Inc. Marathon	IMISNO.: 0042110205
MOE REGION:	Northwest	DISTRICT: Thunder Bay
INDUSTRIAL SECTOR:	Metal Mining and Refining	SIC CODE: 0592
RECEIVING WATERBODY:	DIRECT: Lim Lake INDIRECT: Lake Superior	

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Copper sulphate and ferric sulphate utilized for metal precipitation. Hydrogen peroxide used for cyanide oxidation.

DISCHARGE TYPE: Continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Issued May, 1984. Requirements established by "Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981"

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Company examining options to further reduce ammonia levels.

COMMENTS: The data for a trout bioassay submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent was not acutely lethal to test fish.

One trout bioassay conducted in 1990, indicated the final effluent to have a measured 96 hour LC50 of > 100 %..

03/08/91

004211-02-0(5) HELMO GOLD MINES INC., GOLDEN GIANT MINE MARATHON REPORT DATE: 14 NOV 91
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL							0.002	0.001	0.001	0.002	0.002	0.002	0.002	
MG/L (ASUT)	REQUIREMENT							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE AVAIL	ACTUAL							0.136	0.06	0.034	0.054	0.04	0.148	0.079	
MG/L (CCNAUR)	GUIDELINE														
CYANIDE FREE	ACTUAL							0.005	0.006	0.009	0.016	0.013	0.087	0.023	
MG/L (CCNFUR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL							0.09	0.032	0.037	0.034	0.032	0.044	0.045	
MG/L (CUUT)	REQUIREMENT							1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL							0.95	0.572	0.64	0.074	0.045	0.272	0.426	
MG/L (FEUT)	REQUIREMENT							1	1	1	1	1	1	1	0
MOLYBDEN UNF.TOT.	ACTUAL							0.05	0.832	0.542	0.384	0.427	0.89	0.521	
MG/L (MOUT)	GUIDELINE														
PH	ACTUAL							7.59	7.827	7.76	7.572	7.717	7.77	7.71	
(PH)	GUIDELINE														0
ANTIMONY UNF.TOT.	ACTUAL							0.39	0.263	0.211	0.368	0.527	0.458	0.37	
MG/L (SBUT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL							0.01	0.01	0.015	0.01	0.01	0.016	0.012	
MG/L (ZNUT)	REQUIREMENT							1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

COMPANY DID NOT DISCHARGE DURING JANUARY TO JUNE 1990 DUE TO PLANT SHUT DOWN.

004211-02-0(5) HELMO GOLD MINES INC., GOLDEN GIANT MINE MARATHON REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL							5887	4794	4815	5840	5603	5477	5403	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL							7.68	7.74	7.8	7.57	6.98	7.92	7.62	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	CALC							0.0911	0.03	0.013	0.0127	0.0129	0.014	0.0289	
KG /DAY (ASUT)	REQUIREMENT														
CYANIDE AVAIL	CALC												0.449	0.449	
KG /DAY (CCNAUR)	GUIDELINE														
CYANIDE FREE	ACTUAL							0.0425	0.0218	0.00692	0.0102	0.0156		0.0194	
KG /DAY (CCNFUR)	GUIDELINE														
COPPER UNF.TOT.	CALC							0.383	0.377	0.09	0.137	0.0628	0.065	0.186	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC								4.13	3.27	1.14	4.58	2.95	3.21	
KG /DAY (FEUT)	REQUIREMENT														
MOLYBDEN UNF.TOT.	CALC										1.92		2.89	2.4	
KG /DAY (MOUT)	GUIDELINE														
ANTIMONY UNF.TOT.	CALC										1.05		1.92	1.49	
KG /DAY (SBUT)	GUIDELINE														
ZINC UNF.TOT.	CALC							0.029	0.029	0.18	0.117	0.0626	0.087	0.0848	
KG /DAY (ZNUT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

COMPANY DID NOT DISCHARGE DURING JANUARY TO JUNE 1990 DUE TO PLANT SHUT DOWN.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Highline Produce Ltd. (previously reported as Campbell's Mushroom Farm) Wellington Mushroom Farm, Hallowell Twp.

IMIS NO.: 0000970400

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE:

RECEIVING WATERBODY: DIRECT: creek (unnamed)
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Growing of mushrooms.

EFFLUENT CHARACTERISTICS: Contains suspended solids (RSP), biodegradable organics (BOD5) and phosphorus (PPUT).

EFFLUENT TREATMENT: Package mechanical treatment plant with effluent filtration followed by polishing lagoon.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-049-72-006 dated May 15, 1972 contains no effluent quality objectives for BOD5 or suspended solids.

MOE OR FEDERAL GUIDELINES: Operational objectives for BOD5 and suspended solids (RSP) are based on treatment (mechanical plant with chemical addition for phosphorus removal) are BOD5- 25 mg/L; Suspended Solids (RSP) is- 25 mg/L assessed on an annual average. Total phosphorus (PPUT) - 1 mg/L assessed on a monthly average.

EXCEEDANCES: Phosphorus (PPUT) (1)

REMEDIAL ACTIONS: Equipment for addition of chemical (alum) for phosphorus removal required manual adjustment. Effluent quality compliance achieved April through December.

COMMENTS:

01/08/ 92

000097-04-0(0) HIGHLINE PRODUCE LTD WELLINGTON MUSHROOM FARM HALLOWELL TWP REPORT DATE: 16 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	203	192	195	199	229	235	220	283	278	278	233	250	233	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2.4	1.73	13.3	3.98	2.52	1.65	1.76	2.54	2.1	3.55	3.91	3.15	3.55	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
PHOSPHOR UNF.TOT.	ACTUAL	0.2	0.15	0.3	0.07	0.09	0.1	0.04	0.074	0.127	0.089	0.105	0.065	0.117	
KG /DAY (PPUT)	REQUIREMENT	0.203	0.192	0.195	0.199	0.229	0.235	0.22	0.283	0.278	0.278	0.233	0.25	0.233	1
RESIDUE PARTIC.	ACTUAL	5.28	7.3	20.4	10.5	10.1	8.23	3.52	7.47	4.17	7.47	6.05	7.4	8.15	
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97.2 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: I.C.I. Canada Inc. (previously reported as Stanchem) Consolidated Packaging (Conpak), Cornwall

IMISNO.:0000391508

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Packages small quantities of industrial chemicals.

EFFLUENT CHARACTERISTICS: Effluent generated by the cleaning of containers and filling equipment.

EFFLUENT TREATMENT: Neutralization.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario guidelines for direct discharge of effluent.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (6), Phosphorus (PPUT) (4), Suspended Solids (RSP) (12)

REMEDIAL ACTIONS: Discussions have been ongoing with the company regarding Zero Discharge in conjunction with the St. Lawrence River Remedial Action Plan (RAP). Further meetings are to be held to develop an interim reduction proposal. ICI has submitted a spills prevention strategy in 1991. Document is under review in 1992.

COMMENTS: Company is part of MISA Inorganic Chemical Sector under which legally enforceable requirements will be set.

The data for three of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Effluent from Conpac to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 16.7, 18.6 and 90.6 %. Three of the remaining samples resulted in 96 hour LC50s > 100 % effluent and the other three samples were determined non-lethal.

01/09/92

000039-15-0(8) I.C.I. CANADA INC., CONPAK CORNWALL REPORT DATE: 16 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	23	25.2	32.3	26.1	33.3	29.2	28.5	24.5	28	39.6	32.2	27.7	29.1	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.7	7.2	7.4	7.4	7.5	7.3	7.5	7.4	7.1	6.8	5.8	7.6	7.14	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	0.8	1.6	0.9	3	0.7	0.2		0.2	1	4.08	0.3	0.1	1.17	
KG /DAY (BOD5)	GUIDELINE	0.575	0.63	0.808	0.653	0.833	0.73		0.613	0.7	0.99	0.805	0.693	0.73	6
CHEM. OX DEMAND	ACTUAL	2	3	3	3	3	1	1	1	2	6.3	2	2	2.09	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.004	0.001	0.007	0.01	0.3	0.002	0.003	0.003	1	1.196	0.02	0.1	0.221	
KG /DAY (PPUT)	GUIDELINE	0.023	0.025	0.032	0.026	0.033	0.029	0.029	0.025	0.028	0.04	0.032	0.028	0.029	4
RESIDUE PARTIC.	ACTUAL	1	1	1	2	2	2	2	0.7	3	2.7	2	2	1.78	
KG /DAY (RSP)	GUIDELINE	0.575	0.63	0.808	0.653	0.833	0.73	0.713	0.613	0.7	0.091	0.805	0.693	0.654	12

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 22 OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 53% IN 1990.

000039-15-0(8) I.C.I. CANADA INC., CONPAK CORNWALL REPORT DATE: 3 MAR 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	24	25		26	33	29	29	25	28	40	32	26	29	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.73	7.17	7.35	7.3	7.51	7.34	7.51	7.39	7.12	6.8	6.11	7.62	7.16	
(PH)	GUIDELINE														
CHEM. OX DEMAND	CALC				2.44						0.305			1.37	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.00672	0.00106		0.0185	0.335	0.00263	0.00277	0.00296	0.954	1.29	0.0182		0.263	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	1.44	1.11		1.66	2.01	1.73	1.82	1.83	2.76	2.23	1.92	1.57	1.83	
KG /DAY (RSP)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: I.C.I. Canada Inc. (previously reported as CIL Ltd) Courtright

IMIS NO.: 0000390203

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3721

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Anhydrous ammonia and nitric acid produced on site are used to produce ammonium nitrate, granular, prilled and sulphur coated urea.

EFFLUENT CHARACTERISTICS: Contains dissolved inorganic compounds such as phosphorus, ammonia, fluoride and nitrates.

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous at shore.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Plant effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was determined as non-lethal.

01/08/91

000039-02-0(3) I.C.I. CANADA INC.
CONTROL POINT: 0200,

COURTRIGHT

REPORT DATE: 3 MAR 92

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	176409	174414	171565	188507	199199	172876	167077	145070	164482	161418	157365	149345	168977	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.93	7.67	7.64	7.7	8.09	8.02	8.08	7.99	8.11	8.08	7.95	7.9	7.93	
(PH)	GUIDELINE														0
FLUORIDE UNF.REAC.	CALC	14	16.8	13.3	15.1	18.6	17.1	11.6	9.58	14.9	16.6	11.5	13.4	14.4	
KG /DAY (FFIDUR)	GUIDELINE														
NH3-N TOTAL	CALC	424	187	272	201	353	234	146	134	145	148	457	198	242	
KG /DAY (NNHTFR)	GUIDELINE	1737	1735	1735	1812	1889	1735	1660	1612	1728	1612	1524	1493	1689	0
NO2+NO3N FIL.REAC	CALC	481	193	170	127	319	182	191	158	228	166	326	191	228	
KG /DAY (NNOTFR)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	12.4	12.5	6.92	11.3	21.4	12.9	11.4	7.3	11.9	10.3	9.67	7.43	11.3	
KG /DAY (PPUT)	GUIDELINE	178	171	138	188	198	172	166	146	165	162	158	149	166	0

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

FFIDUT NOT MONITORED UNDER MISA MONITORING REGULATION. FFIDUR PREVIOUSLY REPORTED AS FFIDUT.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: I.C.I. Forest Products Canada Inc. (previously reported as CIL Ltd.) Cornwall

IMIS NO.: 0000390401

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: The mercury cell process is used to produce caustic and chlorine gas from salt

EFFLUENT CHARACTERISTICS: Contains low levels of mercury and Suspended Solids (RSP).

EFFLUENT TREATMENT: All mercury-contaminated streams are collected and subjected to an efficient physical and chemical treatment to remove mercury before discharge.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Federal Fisheries Act regulations governing the amount of mercury discharged from mercury-cell chlor-alkali plants and Ontario guidelines for the direct discharge of effluent.

EXCEEDANCES: Suspended Solids (RSP) (12)

REMEDIAL ACTIONS: Ministry staff have met with ICI to explore the RSP exceedances. The company is investigating suspended solids reduction, an amendment to the Certificate of Approval is anticipated. Discussions have been ongoing regarding Zero Discharge in conjunction with the St. Lawrence River Remedial Action Plan (RAP). Under the MISA program best available technology is under review. A strategy for spill reduction has been submitted in 1991. The document is under review in 1992.

COMMENTS: Company is part of MISA Inorganic Chemical Sector under which legally enforceable requirements will be set.

The data for eight of nine trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the LEL-2 effluent to have been not acutely lethal to test fish. However, the remaining sample was determined lethal. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 84.5 %. An audit sample tested by the MOE was determined as non-lethal.

01/09/92

000039-04-0(1) I.C.I. FOREST PRODUCTS CANADA INC. CORNWALL REPORT DATE: 20 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3286	3167	3366	3580	3912	4825	4289	4282	4511	5895	4144	2322	3965	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	15.4	9.8	5.7	14	5.5	5.3		9	5	10.6	8	2	8.21	
KG /DAY (BOD5)	GUIDELINE	82	79	84	90	98	121		107	113	147	104	58	98.5	0
CHEM. OX DEMAND	ACTUAL	66	82	135	104	31	53	34	39	41	47	70	67	64.1	
KG /DAY (COD)	GUIDELINE														
MERCURY UNF.TOT.	ACTUAL	0.041	0.074	0.039	0.069	0.046	0.065	0.061	0.058	0.046	0.035	0.027	0.032	0.049	
KG /DAY (HGUT)	GUIDELINE	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0
PHOSPHOR UNF.TOT.	ACTUAL	0.76	0.6	0.7	0.5	1	0.48	1.3	0.43	0.5	1.47	0.4	0.5	0.72	
KG /DAY (PPUT)	GUIDELINE	3.3	3.2	3.4	3.6	3.9	4.8	4.3	4.3	4.5	5.9	4.1	2.3	3.97	
RESIDUE PARTIC.	ACTUAL	187	222	168	129	110	222	154	197	235	336	373	200	211	
KG /DAY (RSP)	GUIDELINE	82	79	84	90	98	121	107	113	147	147	104	53	102	12

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 66% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: INCO Ltd. Copper Cliff Nickel Refinery

IMISNO.: 0001690403

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Kelly Lake
INDIRECT: 70 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Various nickel products are made.

EFFLUENT CHARACTERISTICS: Contains dissolved sulphates of nickel and copper.

EFFLUENT TREATMENT: Raw effluent is treated in two ponds with lime to precipate the metals.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Nickel (2)

REMEDIAL ACTIONS: Inco Limited is presently investigating the feasibility of re-routing the effluent to the Copper Cliff Tailings area.

COMMENTS: The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Discharge/ Second Pond effluent was not acutely lethal to test fish. The other sample when tested resulted in a 96 hour LC50 > 100 % effluent.

12/16/91

000169-04-0(3) INCO LTD. NICKEL REFINERY — COPPER CLIFF — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1431	3332	3444	3340	3451	4650	1232	2937	3359	4199	4651	3814	3320	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.7	9.74	9.83	9.93	9.81	9.99	10.2	9.94	10	9.59	9.76	9.89	9.87	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	CALC	0.31	0.285	0.558	0.232	0.232	0.315	0.0519	0.582	0.205	0.32	0.7	0.626	0.368	
KG /DAY (CUUT)	GUIDELINE	1.43	3.33	3.44	3.34	3.45	4.65	1.23	2.88	3.36	4.2	4.65	3.81	3.32	0
IRON UNF.TOT.	CALC	0.11	0.767	0.427	1.53	0.0617	0.707	0.0416	0.364	0.199	0.193	1.07	0.538	0.501	
KG /DAY (FEUT)	GUIDELINE	1.43	3.25	3.62	3.62	3.43	4.72	0.945	2.91	3.43	3.5	6.3	4.85	3.5	0
NICKEL UNF.TOT.	CALC	0.46	2.8	4.14	3.11	1.98	2.68	0.27	1.7	2.16	3.64	4.05	4.21	2.6	
KG /DAY (NIUT)	GUIDELINE	1.43	3.33	3.44	3.34	3.45	4.65	1.23	2.88	3.36	4.2	4.65	3.81	3.32	2
NH3-N TOTAL	CALC	0.89												0.89	
KG/DAY (NNHTUR)	GUIDELINE	14.3												14.3	0
RESIDUE PARTIC.	CALC	4.29	22.9	15.9	13.6	13.2	15.4	3.89	12.4	12.4	18.3	22.3	16.5	14.3	
KG /DAY (RSP)	GUIDELINE	21.5	50	51.7	50.1	51.8	69.8	18.5	43.2	50.4	63	69.8	57.2	49.7	0
ZINC UNF.TOT.	CALC	0.04	0.0269	0.0246	0.021	0.0376	0.036	0.0176	0.0372	0.027	0.0498	0.039	0.0293	0.0322	
KG /DAY (ZNUT)	GUIDELINE	1.43	3.37	3.44	3.34	3.45	4.65	1.23	2.88	3.36	4.2	4.65	3.81	3.32	0

NOTE: PH-LIMITS 5.50 - 10.6, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 73, FOR A TOTAL COMPLIANCE RECORD OF 97.3 % IN 1990.

NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Copper Cliff Creek Wastewater Treatment Plant

IMISNO.: 0001690304

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River to Spanish River
INDIRECT: 70 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Smelting and refining of nickel, copper and precious metals.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates and other metals.

EFFLUENT TREATMENT: Neutralization with lime.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE) (July 5, 1991) The Certificate of Approval limits are: Iron 0.5 ppm, Nickel 0.5 ppm, Copper 0.3 ppm, Suspended Solids 15 ppm

EXCEEDANCES: Iron (4), Nickel (8), Copper (1), Suspeneded Solids (RSP) (8)

REMEDIAL ACTIONS: A Certificate of Approval was issued in July 1991 with conditions to address the present bypass situation and assess the need for increasing treatment capability.

COMMENTS: The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final discharge effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 72.7, 80.6 and 80.6 %.

12/16/91

000169-03-0(4) INCO LTD., COPPER CLIFF TREATMENT PLANT — COPPER CLIFF — REPORT DATE: 4 DEC 91

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	85200												85200	
M3/DAY (FTFLOW)	REQUIREMENT														
PH	ACTUAL	10.1												10.1	
(PH)	REQUIREMENT														0
COPPER UNF. TOT.	ACTUAL	0.596												0.596	
KG/DAY (CUUT)	REQUIREMENT	25.6												25.6	0
IRON UNF. TOT.	ACTUAL	49.4												49.4	
KG/DAY (FEUT)	REQUIREMENT	42.6												42.6	1
NICKEL UNF. TOT.	ACTUAL	53.7	59.4	64.6	55.9	73.9	90	18.3	24.7	30.2	62.9	150	59.7	61.9	
KG/DAY (NIUT)	REQUIREMENT	42.6	54	59.5	54.6	62.1	54.8	38.4	34.4	41.7	62.9	47.4	54.9	50.6	8
NH3-N TOTAL	ACTUAL	585	853	716	547	643	586	390	400	494	720	549	691	598	
KG/DAY (NNHTUR)	REQUIREMENT	852	1080	1191	1091	1242	1069	768.5	688	833	1259	949	1098	1010	0
RESIDUE PARTIC.	ACTUAL	767												767	
KG/DAY (RSP)	REQUIREMENT	1278												1278	0
ZINC UNF.TOT.	ACTUAL	0.852												0.852	
KG/DAY (ZNUT)	REQUIREMENT	42.6												42.6	0

NOTE: PH-LIMITS 8.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 29, FOR A TOTAL COMPLIANCE RECORD OF 69 % IN 1990.

000169-03-0(4) INCO LTD., COPPER CLIFF TREATMENT PLANT — COPPER CLIFF — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		108017	119077	109116	124158	106900	76846	68885	83318	125861	94893	109776	102441	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		9.71	9.87	9.87	9.93	10.2	10.1	10.1	10.3	10	9.85	9.94	9.98	
(PH)	REQUIREMENT														0
COPPER UNF.TOT.	CALC		8.58	19.2	14.3	25	24.2	21.7	10.5	17.9	35.6	32.8	29.9	21.8	
KG /DAY (CUUT)	REQUIREMENT		32.4	35.7	32.7	37.2	32.1	23.1	20.7	25.1	37.8	28.5	33	30.8	1
IRON UNF.TOT.	CALC		27.7	41.2	39	59.6	75.6	7.44	22.2	4.64	45.2	278	41	58.3	
KG /DAY (FEUT)	REQUIREMENT		56.4	60.6	33.6	65.4	62.4	13.2	36.0	13.8	72.9	73.2	43.8	48.3	3
NICKEL UNF.TOT.	CALC		59.4	65.4	55.9	74.6	72.2	20	26.2	31.6	65.1	122	57.5	59.1	
KG /DAY (NIUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC		1643	2357	1800	2378	1960	454	612	742	1976	3219	2244	1762	
KG /DAY (RSP)	REQUIREMENT		1620	1786	1637	1862	1604	1153	1033	1250	1888	1373	1647	1532	8
ZINC UNF.TOT.	CALC		1.01	0.875	0.655	1.1	1.34	0.491	0.463	0.507	0.755	1.99	0.709	0.899	
KG /DAY (ZNUT)	REQUIREMENT		108	119	109	124	107	76.8	68.9	83.3	126	94.9	110	102	0

NOTE: PH-LIMITS 8.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 78.2 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Crean Hill Mine

IMIS NO.: 0001690809

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: creek (unnamed) to Monk Lake
INDIRECT: Vermillion River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT CHARACTERISTICS: Contains copper, nickel and iron sulphates.

EFFLUENT TREATMENT: Effluent from tailings pond is neutralized with lime.

DISCHARGE TYPE: Intermittent to become continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: pH (2), Nickel (1), Zinc (1)

REMEDIAL ACTIONS:

COMMENTS: Tailings effluent is batch treated with lime. No changes to this system are planned.

The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Minewater effluent to have been not acutely lethal to test fish. The remaining sample when tested produced a 96 hour LC50 of > 100 % effluent.

12/16/91

000169-08-0(9) INCO LTD., CREAN HILL MINE — COPPER CLIFF — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE

FLOW/LOADING PARAMETERS		JAN	1990 DATA FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	629	1516	3987	4154	3303	2158	1990	570	1192	2411	5034	2961	2492	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.1	11	10.6	10.5	10.2	9.35	9.06	8.96	9.09	9.15	9.86	10.9	9.82	
(PH)	GUIDELINE														2
COPPER UNF.TOT.	CALC	0.005	0.0189	0.0332	0.0333	0.0393	0.0513	0.0127	0.00388	0.007	0.0212	0.0439	0.0211	0.0242	
KG /DAY (CUUT)	GUIDELINE	0.629	1.52	3.99	4.15	3.3	2.16	1.99	0.57	1.19	2.41	5.03	2.96	2.49	0
IRON UNF.TOT.	CALC	0.044	0.053	2.25	0.248	0.0573	0.079	0.0565	0.0125	0.016	0.135	0.125	0.134	0.268	
KG /DAY (FEUT)	GUIDELINE	0.629	1.88	9.88	5.39	2.86	1.64	1.13	0.482	0.598	2.41	2.41	3.72	2.75	0
NICKEL UNF.TOT.	CALC	0.094	0.179	4.77	1.06	0.553	0.141	0.262	0.0462	0.083	0.424	1.57	0.606	0.816	
KG /DAY (NIUT)	GUIDELINE	0.629	1.52	3.99	4.15	3.3	2.16	1.99	0.57	1.19	2.41	5.03	2.96	2.49	1
NH3-N TOTAL	CALC	1.95												1.95	
KG/DAY (NNHTUR)	GUIDELINE	6.29												6.29	0
RESIDUE PARTIC.	CALC	0.629	7.39	29.3	13.2	10.9	7.02	5.97	1.71	3.58	7.23	17.7	9.6	9.52	
KG /DAY (RSP)	GUIDELINE	9.44	22.7	59.8	62.3	49.5	32.4	29.9	8.55	17.9	36.2	75.5	44.4	37.4	0
ZINC UNF.TOT.	CALC	0.05	0.0141	0.1	0.034	0.0256	11.6	0.0131	0.00342	0.00745	0.0145	0.0438	0.0187	0.995	
KG /DAY (ZNUT)	GUIDELINE	0.629	1.52	3.99	4.15	3.3	2.16	1.99	0.57	1.19	2.41	5.03	2.96	2.49	1

NOTE: PH-LIMITS 5.50 - 10.6, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 73 , FOR A TOTAL COMPLIANCE RECORD OF 94.5 % IN 1990.

NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Garson Mine

IMIS NO.: 0001690700

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River
INDIRECT: 86 km. to Lake Huron (North Channel) to Spanish River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings area is neutralized with lime.

DISCHARGE TYPE: Continuous from mine water treatment system.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Iron (1), pH (1), Nickel (2)

REMEDIAL ACTIONS: Dredging of the settling ponds was completed in 1989 with the need for further retention being investigated.

COMMENTS: The mine resumed operation in 1989.

The data for one of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Minewater/culvert effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 80.6 %. One of the remaining samples was non-lethal and the other resulted in a 96 hour LC50 of > 100 % effluent.

12/16/91

000169-07-0(0) INCO LTD., GARSON MINE — COPPER CLIFF — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2271	1802	3556	2512	2928	2111	2538	2130	1973	3246	3116	3328	2626	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.3	10.1	10.2	9.84	10	10.2	10.1	9.29	10.2	10.7	10.4	10.2	10	
(PH)	GUIDELINE														1
COPPER UNF.TOT.	CALC	0.3	0.0148	0.0661	0.0192	0.0474	0.014	0.0184	0.0155	0.014	0.0308	0.0818	0.152	0.0645	
KG /DAY (CUUT)	GUIDELINE	2.27	1.8	3.56	2.51	2.93	2.11	2.54	2.13	1.97	3.25	3.12	3.33	2.62	0
IRON UNF.TOT.	CALC	0.43	0.08	0.417	0.0137	0.0764	0.374	0.324	7.01	0.019	0.0316	0.0237	0.161	0.747	
KG /DAY (FEUT)	GUIDELINE	2.27	2.0	5.09	2.29	2.94	2.08	2.28	1.98	1.60	1.98	1.98	3.65	2.51	1
NICKEL UNF.TOT.	CALC	4.54	0.587	2.09	0.939	1.31	0.346	0.324	2.98	0.584	1.17	1.94	2.1	1.57	
KG /DAY (NIUT)	GUIDELINE	2.27	1.79	3.56	2.51	2.93	2.11	2.54	2.13	1.97	3.25	3.12	3.33	2.62	2
NH3-N TOTAL	CALC	0.213												0.213	
KG/DAY (NNHTUR)	GUIDELINE	22.7												22.7	0
RESIDUE PARTIC.	CALC	34.1	15.8	47.1	28.4	32.1	16.5	11.5	9.03	15.4	39.9	34.7	39.4	27	
KG /DAY (RSP)	GUIDELINE	34.1	27	53.3	37.7	43.9	31.7	38.1	32	29.6	48.7	46.7	49.9	39.4	0
ZINC UNF.TOT.	CALC	0.07	0.0115	0.0618	0.0226	0.0401	0.013	0.0152	0.0128	0.012	0.0272	0.0568	0.0523	0.0329	
KG /DAY (ZNUT)	GUIDELINE	2.27	1.79	3.56	2.51	2.93	2.11	2.54	2.13	1.97	3.25	3.12	3.33	2.62	0

NOTE: PH-LIMITS 5.50 - 10.6, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 73 , FOR A TOTAL COMPLIANCE RECORD OF 94.5 % IN 1990.

NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: INCO Ltd. IMIS NO.: 0001690106
& PLANT LOCATION: Levack Tailings Area

MOE REGION: Northeast DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Onaping River
INDIRECT: 113 km to Lake Huron

DESCRIPTION OF ACTIVITY: Mining and crushing operations.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings is limed prior to discharge.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: pH (1), Suspeneded Solids (RSP) (4), Iron (2), Nickel (5)

REMEDIAL ACTIONS: An automatic lime addition system with continuous pH monitoring was installed in November 1989 with optimization of the operation being undertaken in 1990.

COMMENTS: The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Minewater effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 80.6 and 80.6 %. The other sample was determined as not acutely lethal. An audit sample tested by the MOE was also determined acutely lethal with a 96 hour LC50 of 80.6 % effluent.

12/16/91

000169-01-0(6) INCO LTD., LEVACK MINE — COPPER CLIFF — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2741	2607	3332	3045	1728	2182	2093	552	883	1415	7443	2435	2538	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.4	10.5	9.41	8.87	8.06	7.95	9.07	8.78	9.66	9.84	10.2	10.8	9.46	
(PH)	GUIDELINE														1
COPPER UNF.TOT.	CALC	0.11	0.0249	0.129	0.0331	0.106	0.0995	0.126	0.00567	0.007	0.0129	0.452	0.0532	0.0967	
KG /DAY (CUUT)	GUIDELINE	2.74	2.61	3.33	3.05	1.73	2.18	2.09	0.552	0.883	1.41	7.44	2.44	2.54	0
IRON UNF.TOT.	CALC	2.19	0.772	30.2	2.38	0.934	0.101	0.371	0.32	0.039	0.442		5.16	3.91	
KG /DAY (FEUT)	GUIDELINE	2.74	2.30	6.97	4.08	2.22	0.38	1.15	0.946	1.090	0.864		4.61	2.49	2
NICKEL UNF.TOT.	CALC	0.66	0.706	1.62	0.38	1.93	1.76	3.41	0.591	0.218	0.358	10.3	7.87	2.48	
KG /DAY (NIUT)	GUIDELINE	2.74	2.61	3.33	3.05	1.73	2.18	2.09	0.552	0.883	1.41	7.44	2.44	2.54	5
NH3-N TOTAL	CALC	21.4												21.4	
KG/DAY (NNHTUR)	GUIDELINE	27.4												27.4	0
RESIDUE PARTIC.	CALC	30.2	54.7	74.2	20	9.98	17.4	26.4	3.05	7.82	9.16	289	113	54.5	
KG /DAY (RSP)	GUIDELINE	41.1	39.1	50	45.7	25.9	32.7	31.4	8.28	13.2	21.2	112	36.5	38.1	4
ZINC UNF.TOT.	CALC	0.05	0.0156	0.0251	0.0206	0.0296	0.0257	0.0349	0.00384	0.005	0.00874	0.161	0.0178	0.0332	
KG /DAY (ZNUT)	GUIDELINE	2.74	2.61	3.33	3.05	1.73	2.18	2.09	0.552	0.883	1.41	7.44	2.44	2.54	0

NOTE: PH-LIMITS 5.50 - 10.6, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 72 , FOR A TOTAL COMPLIANCE RECORD OF 83.3 % IN 1990.

NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION — INCO Ltd. Nolin Creek Wastewater Treatment Plant — IMISNO.: 0001690601

MOE REGION: Northeast — DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining and Refining — SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Nolin Creek to Junction Creek to Vermillion River to Spanish River
INDIRECT: 77 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Metallurgical complex that smelts and refines nickel, copper and associated metals from concentrates.

EFFLUENT CHARACTERISTICS: Contains a variety of dissolved metal salts.

EFFLUENT TREATMENT: Neutralized by addition of lime.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (July 5, 1991) The Certificate of Approval limits; iron - 0.5 ppm, nickel - 0.5 ppm, copper 0.3 ppm, suspended solids 15 ppm. The original design information which was the basis for the Certificate of Approval limits is being reviewed.

EXCEEDANCES: Copper (4), Iron (9), Nickel (10), Suspeneded Solids (RSP) (6)

REMEDIAL ACTIONS: A Certificate of Approval with conditions requiring a study to address the present bypassing situation and assess the need for increased treatment capability has been issued to the company on July 1991.

COMMENTS: The data for one of two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent was not acutely lethal to test fish. The other sample when tested resulted in a 96 hour LC50 > 100 % effluent. An audit sample tested by the MOE was determined as acutely lethal to test fish. The 96 hour LC50 was measured to be 80.1 % effluent.

12/16/91

000169-06-0(1) INCO LTD. NOLIN CREEK — COPPER CLIFF — REPORT DATE: 4 DEC 91

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6030												6030	
M3/DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.3												10.3	
(PH)	REQUIREMENT														0
COPPER UNF. TOT.	ACTUAL	0.302												0.302	
KG/DAY (CUUT)	REQUIREMENT	1.81												1.81	0
IRON UNF. TOT.	ACTUAL	1.63												1.63	
KG/DAY (FEUT)	REQUIREMENT	3.02												3.02	0
NICKEL UNF. TOT.	ACTUAL	1.63	1.54	22.5	13.6	41.8	25	89.4	13.1	15.4	100	24.6	190	44.9	
KG/DAY (NIUT)	REQUIREMENT	3.02	2.85	14.4	12.8	6.96	9	10.8	5.7	9.6	6.24	8.1	8.4	8.16	10
NH3-N TOTAL	ACTUAL	26.1	38.8	25.3	42.8	22.8	30.6	36.7	29.9	61.8	15.7	22.2	15.5	30.7	
KG/DAY (NNHTUR)	REQUIREMENT	60.3	57	288	255	139	1800	216	414	192	125	162	168	323	0
RESIDUE PARTIC.	ACTUAL	48.2												48.2	
KG/DAY (RSP)	REQUIREMENT	90.5												90.5	0
ZINC UNF.TOT.	ACTUAL	0.06												0.06	
KG/DAY (ZNUT)	REQUIREMENT	3.02												3.02	0

NOTE: PH-LIMITS 8.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 29, FOR A TOTAL COMPLIANCE RECORD OF 65.5 % IN 1990.

000169-06-0(1) INCO LTD. NOLIN CREEK — COPPER CLIFF — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		5700	28800	25500	13920	18000	21600	11400	19200	12480	16200	16800	17236	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		9.8	10.1	10.6	11	10.3	10.3	10.5	9.55	9.6	9.33	8.94	10	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	CALC		0.376	8.01	3.11	10.3	0.108	18.9	1.13	1.21	32.8	3.53	59.8	12.7	
KG /DAY (CUUT)	REQUIREMENT		1.71	8.64	7.65	4.17	5.4	6.48	3.42	5.76	3.75	4.86	5.04	5.17	4
IRON UNF.TOT.	CALC		3.28	15.7	7.55	33.4	25.2	100	28.7	7.3	114	20.4	162	47.1	
KG /DAY (FEUT)	REQUIREMENT		2.85	14.4	12.8	6.96	9	10.8	5.7	9.6	6.24	8.1	8.4	8.62	9
NICKEL UNF.TOT.	CALC		1.54	22.5	13.6	41.8	25	89.4	13.1	7.7	100	24.6	190	48.1	
KG /DAY (NIUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC		51.3	230	281	668	792	864	205	76.8	1090	211	1380	532	
KG /DAY (RSP)	REQUIREMENT		85.5	432	383	209	270	324	171	288	187	243	252	259	6
ZINC UNF.TOT.	CALC		0.0422	0.576	0.153	1.53	0.612	2.25	0.239	0.115	2.3	0.454	3.53	1.07	
KG /DAY (ZNUT)	REQUIREMENT		5.7	28.8	25.5	13.9	18	21.6	11.4	19.2	12.5	16.2	16.8	17.2	0

NOTE: PH-LIMITS 8.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 19 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 65.5 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: INCO Metals Ltd. Port Colborne

IMISNO.: 0001600105

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Electrolytic processes are used to recover pure metals like nickel, copper, silver, gold, etc.

EFFLUENT CHARACTERISTICS: Contains total suspended solids and dissolved metals.

EFFLUENT TREATMENT: Filtration plant.

DISCHARGE TYPE: Open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (1976)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

03/08/91

000160-01-0(5) INCO METALS LTD. - REFINERY PORT COLBORNE REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10700	8381	9737	12146	11755	10747	6095	8441	10492	11686	9158	11030	10031	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.5	10.7	10.7	10.4	10.5	10.2	9.72	9.73	10.3	10.4	10.6	10.6	10.4	
(PH)	REQUIREMENT														0
NICKEL UNF.TOT.	CALC	2.2	1.46	2.71	3.14	3.83	1.14	0.821	0.763	1.48	1.28	1.28	2.57	1.89	
KG /DAY (NIUT)	GUIDELINE	10.7	8.38	9.74	12.1	11.8	10.7	6.10	8.44	10.5	11.7	9.16	11.0	10	0
RESIDUE PARTIC.	CALC	34.7	35.2	129	169	86	66.9	19.4	28.1	72.9	57.8	72.2	102	72.8	
KG /DAY (RSP)	GUIDELINE	161	126	146	182	176	161	91	127	157	175	137	165	150	0

NOTE: PH-LIMITS 5.50 - 11.6, # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Shebandowan Complex

IMIS NO.: 0001690908

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Shebandowan River. to Kaministiquia R.
INDIRECT: 130 km to Lake Superior.

DESCRIPTION OF ACTIVITY: Base metal mining.

EFFLUENT CHARACTERISTICS: Contains heavy metals, suspended solids and pH.

EFFLUENT TREATMENT: Polishing lagoon (tailings pond)

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in the Ontario Mineral Industry (1981)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined as not acutely lethal.

03/08/91

000169-09-0(8) INCO LTD. SHEBANDOWAN PROPERTY — SHEBANDOWAN — REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, — 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		3027	5586	6430	8404	6630	3931	2024	2849	4095	4396	4713	4735	
M3 /DAY (FTFLOW)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.004	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
MG/L AS (CUUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0.21	0.2	0.19	0.12	0.18	0.18	0.17	0.16	0.16	0.23	0.25	0.24	0.19	
MG/L (NIUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL	0.47	0.76	1.18	1.14	1.1	1.08	1.2	1.31	1.3	1.3	1.66	2.02	1.21	
MG/L (NNHTFR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
LEAD UNF.TOT.	ACTUAL	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
MG/L (PBUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.35	7.07	7.18	7.03	7.56	7.82	7.62	7.70	7.48	7.42	7.40	7.15	7.40	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	1.7	3.17	3	3	6.73	5.92	3.79	3.23	4	5.5	4.69	4	4.06	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
SOLVENT EXTRACT	ACTUAL	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.68	0.4	1.01	
MG/L (SOLEXT)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000169-09-0(8) INCO LTD. SHEBANDOWAN PROPERTY — SHEBANDOWAN — REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL		2942	5586	6430	8404	6630	3931	2024	2849	4095	4396	4713	4727	
	GUIDELINE														
PH (PH)	ACTUAL		7.07	7.18	7.03	7.56	7.82	7.62	7.7	7.48	7.42	7.4	7.15	7.4	
	GUIDELINE														
COPPER UNF.TOT. KG /DAY (CUUT)	CALC		0.0177	0.0335	0.0397	0.0686	0.0804	0.0248	0.0121	0.0182	0.0263	0.0264	0.0283	0.0342	
	GUIDELINE														
IRON UNF.TOT. KG /DAY (FEUT)	CALC		0.32	1.57	0.234	2.32	0.717	0.526	0.112	0.167	0.167	0.59	0.726	0.676	
	GUIDELINE														
NICKEL UNF.TOT. KG /DAY (NIUT)	CALC		0.584	1.03	0.796	1.43	1.22	0.681	0.323	0.453	0.948	1.11	1.13	0.882	
	GUIDELINE														
SULPHATE UNF.REAC KG /DAY (SSO4UR)	CALC		1590	3500	206	3230	2040	1310	804	1460	1680	1840	2280	1813	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC		0.0483	0.0335	0.0386	0.0719	0.0536	0.0236	0.0121	0.0173	0.0269	0.0264	0.0283	0.0346	
	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION:	International Minerals and Chemicals Dunnville	IMIS NO.: 0001500008
MOE REGION:	West Central	DISTRICT: Haldimand-Norfolk
INDUSTRIAL SECTOR:	Inorganic Chemicals	SIC CODE: 372
RECEIVING WATERBODY:	DIRECT: Grand River INDIRECT: 3 km to Lake Erie	

DESCRIPTION OF ACTIVITY: Phosphate ore, sulphuric acid, and phosphoric acid were used to make fertilizer in the past. Manufacturing activities now ceased. Effluent is storm runoff from gypsum ponds.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Lime precipitation.

DISCHARGE TYPE: Continuous at shoreline.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Phosphorus 4.54 kg/day

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Since plant shut down, phosphorus loadings have continued to decline. WWTP is operated to treat phosphorus in storm runoff. Company is preparing decommissioning plan for closure of gypsum ponds.

The data for eight of eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final effluent was not acutely lethal to test fish. However, one of the remaining three samples was determined as acutely lethal with a 96 hour LC50 measuring 86.4 % effluent. The other samples, when tested, resulted in 96 hour LC 50s > 100 % effluent. An audit sample tested by MOE was determined as non-lethal.

01/14/92

000150-00-0(8) INTERNATIONAL MINERALS AND CHEMICALS CORPORATION DUNNVILLE REPORT DATE: 23 JAN 92
CONTROL POINT: 0300, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2708	2905	3431	3003	2901	2868	2878	2978	3122	2701	2611	2149	2855	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.84	8.78	8.1	7.91	7.58	7.31	7.49	7.03	6.83	7	6.83	7.22	7.58	
(PH)	GUIDELINE														0
PHOSPHOR UNF.TOT.	CALC	1.86	2.3	3.19	2.16	1.85	1.93	1.51	1.79	1.84	1.58	1.07	1.2	1.86	
KG /DAY (PPUT)	GUIDELINE	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	0

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: James River-Marathon Ltd. Marathon

IMIS NO.: 0000850008

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Pulp is produced from chips (both hardwood and softwood) by the kraft pulping process. The pulp is bleached. Crude tall oil is produced and sold.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibres) and many organic (some chlorinated) compounds.

EFFLUENT TREATMENT: Primary clarifier on high-solids wastewaters and foam barrier remove solids. The woodroom (hardwood debarking) is dry.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Issued October 25,1989. Requires Reductions in Total Suspended Solids, Biochemical Oxygen demand and Adsorbable Organic Halides by December 31,1991 as follows: BOD to 11.8 tonnes, TSS to 3.3 tonnes, all averaged over 30 consecutive working days and AOX to 2.5 kilograms/ADT of production.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Three trout bioassays conducted in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 15.8, 34.4 and 72.7 %.

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.1 - 77.0 %. An audit sample tested by MOE was also determined acutely lethal with a 96 hour LC50 measuring 34.6 % effluent.

02/27/91

000085-00-0(8) JAMES RIVER-MARATHON, LTD. MARATHON REPORT DATE: 14 NOV 91
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	62051	60869	59667	61677	61078	65580	58758	60345	60922	60987	55896	56780	60384	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	13896	13803	13429	13872	11871	12443	12967	10858	11611	12576	12936	12260	12710	
	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	2993	2528	2464	2696	2419	2356	2729	2464	2000	2077	3570	3450	2646	
	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000085-00-0(8) JAMES RIVER-MARATHON, LTD. MARATHON REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL	62052	60820	59667	61676	61327	65580	58757	60345	61425	60994	55897	56778	60443	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	CALC	12600	13800	12100	13800	10800	12200	13200	9520	11000	11900	12000	11300	12018	
	REQUIREMENT														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	2970	2520	2460	2700	2420	2360	2730	2460	2020	2080	3560	3470	2646	
	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: J. M. Schneider Inc. Ayr

IMIS NO.: 0001440007

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1011, 1012

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 196 km to Lake Erie

DESCRIPTION OF ACTIVITY: Poultry and pork are processed. Poultry is cooked and/or frozen and then packaged for retail and food service sales.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Grease skimming, flow equalization, dissolved air flotation, aeration, sedimentation and chlorination.

DISCHARGE TYPE: Seven day continuous flow through a submerged outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Monthly requirements were those of Certificate of Approval, revised in November 1986. A new Certificate of Approval was issued in November, 1990.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (2), Suspeneded Solids (RSP) (2), NH3-N (1)

REMEDIAL ACTIONS: Company applied in October 89 for approval to upgrade its treatment plant by replacing existing (marginal) clarifier with a new, larger unit, for future production increase. New clarifier is on-stream, but exceedances persisted. Company's 1991 abatement program included changing chemicals added to DAF unit, plus reducing waste water flow, and applied for approval to convert old clarifier into a second aeration tank. Approval issued and conversion completed in Fall of 1991. Compliance expected in Fall 1991.

COMMENTS: Reported loadings are based on measured flow rate.

000144-00-0(7) J.M.SCHNEIDER INC — AYR — REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	54.0	83.0	83.8	88.4	33.2	71.6	63.1	69.2	94.9	168	156	114	90.0	
M3 /DAY (FTFLOW)	REQUIREMENT	363	363	363	363	363	363	363	363	363	363	363	363	363	0
PH	ACTUAL	6.78	7.45	7.81	7.73	7.67	6.97	7.35	7.2	7.3	7.55	7.15	7.45	7.37	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	0.26	1.39	0.42	0.32	0	0.81	0.62	0	0.96	3.51	12.4	6.52	2.27	
KG /DAY (BOD5)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	2
NH3-N TOTAL	ACTUAL	0.001	0.98	0.05	0.01	4.17	0.45	0.08	0.02	0.08	0.33	2.72	0.24	0.761	
KG /DAY (NNHTFR)	REQUIREMENT	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	1
K'DAHL N TOTAL	ACTUAL	0.02	1.11	0.13	0.09	4.91	0.54	0.12	0.05	0.08	0.46	4.12	0.36	0.999	
KG /DAY (NNTKUR)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
PHOSPHOR UNF.TOT.	ACTUAL	0.02	0.03	0.1	0.03	0	0.01	0	0.02	0.02	0.02	0.02	0.02	0.024	
KG /DAY (PPUT)	REQUIREMENT	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0
RESIDUE PARTIC.	ACTUAL	0.46	0.96	1.48	1.23	0.13	0.92	0.31	0.6	1.64	1.93	26.5	11.4	3.97	
KG /DAY (RSP)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	2
SOLVENT EXTRACT.	ACTUAL	0.32	2.99	0.36	2.39	0.8	1.08	0.5	0.46	0.56	0.84	2.29	2.11	1.23	
KG /DAY (SOLEXT)	REQUIREMENT	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Kimberly-Clark of Canada Ltd. Huntsville

IMISNO.: 0000830109

MOE REGION: Central

DISTRICT: Gravenhurst

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Big East River
INDIRECT: Muskoka River

DESCRIPTION OF ACTIVITY: Converts pulp into personal paper products

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Conventional and tertiary.

DISCHARGE TYPE: Seasonal intermittent.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-099-69-006

Flow	34.8 L/s
Biochemical Oxygen Demand (BOD5)	227.3 kg/day
Phosphorous	0.3 kg/day
Suspended Solids (RSP)	151 kg/day

MOE OR FEDERAL GUIDELINES: COD is industry wide guideline.

EXCEEDANCES: Phosphorous (1)

REMEDIAL ACTIONS: A review of operational parameters at the time of this marginal exceedance did not identify any abnormalities.

COMMENTS: A marginal exceedance (0.01 kg/day) of the phosphorus loading limit occurred in April. This plant is subject to MISA, Pulp and Paper Sector. Plant did not discharge for the months: May; June; July; August; September; and October 1990.

The data for six trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Effluent Discharge was not acutely lethal to test fish. An audit sample tested by MOE was also determined non-lethal.

11/15/91

000083-01-0(9) KIMBERLY-CLARK OF CANADA LTD. HUNTSVILLE REPORT DATE: 07 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	421	856	805	984							398	704	521	
M3 /DAY (FTFLOW)	GUIDELINE	3007	3007	3007	3007							3007	3007	3007	0
CHEM. OX DEMAND	ACTUAL	34	65	57	78							37	61	41.5	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.05	0.23	0.19	0.31							0.07	0.12	0.121	
KG /DAY (PPUT)	REQUIREMENT	0.3	0.3	0.3	0.3							0.3	0.3	0.3	1
RESIDUE PARTIC.	ACTUAL	1.1	1.4	1.1	3							0.9	1.1	1.08	
KG /DAY (RSP)	REQUIREMENT	151	151	151	151							151	151	151	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1990.

FLOW LIMIT OF 34.8 L/S CONVERTED TO M3/DAY.
THROUGH AN AGREEMENT WITH THE DISTRICT OFFICE, COD IS REPORTED IN LIEU OF BOD5. COD CORRELATES WITH BOD5 APPROXIMATELY 6:1.

000083-01-0(9) KIMBERLY-CLARK OF CANADA LTD. HUNTSVILLE REPORT DATE: 07 JAN 92
CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	868	858	805	984							410	727	776	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	1.38	2.5	3.23	2.77							61	4.38	12.5	
KG/DAY (BOD5)	GUIDELINE														
CHEM. OX DEMAND	CALC	61.7	60.7	59.7	78.9							38.2	64.5	60.6	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.11	0.281	0.172	0.312							0.0577	0.0479	0.163	
KG/DAY (PPUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC	4.45	4.43	4.28	5.89							2.14	3.64	4.14	
KG /DAY (RSP)	REQUIREMENT														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ABOVE.

COMPANY DID NOT DISCHARGE BETWEEN MAY AND OCT 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Kimberly-Clark of Canada Ltd. St. Catharines

IMISNO.: 0000830208

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek.
INDIRECT: 10 km to Lake Ontario.

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are made into tissue and special papers.

EFFLUENT CHARACTERISTICS: Residual solids produce a turbid effluent.

EFFLUENT TREATMENT: Saveall screens precede primary clarifier and retention ponds for solids removal.

DISCHARGE TYPE: Continuous through an open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL: BOD5 limit of 50 mg/L set by Pulp and Paper Committee. Suspended Solids limit of 50 mg/L (NET) set by Certificate of Approval.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (3)

REMEDIAL ACTIONS: In 1990, the company applied for a Certificate of Approval to upgrade their wastewater treatment system. Aeration and process changes were completed in November, 1991.

COMMENTS: The data for six of eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final effluent was not acutely lethal to test fish. The remaining two samples resulted in 96 hour LC50s > 100 % effluent. An audit sample tested by MOE was also determined non-lethal.

04/21/92

000083-02-0(8) KIMBERLY-CLARK OF CANADA LTD. ST. CATHARINES REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8618	8081	7745	6917	7422	7608	7875	9690	10854	10398	9958	10391	8796	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	189	222	259	355	390	394	361	322	353	369	263	343	318	
KG /DAY (BOD5)	GUIDELINE	423	403	380	343	370	370	407	453	547	520	487	510	434	3
RESIDUE PARTIC.	CALC	76.2	40.3	75.2	58	46.7	55.9	69.6	55.8	60.2	81.4	55.9	127	66.9	
KG /DAY (RSP)	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 75 % IN 1990.

SUSPENDED SOLIDS ARE ASSESSED ON A NET BASIS

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Kimberly-Clark of Canada Ltd. IMIS NO.: 0000830000
& PLANT LOCATION: Terrace Bay

MOE REGION: Northwest DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Blackbird Creek
INDIRECT: Lake Superior (Jackfish Bay)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs are made into bleached pulp by the kraft pulping process

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibres) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifiers, spill collection, aeration lagoon. Two clarifiers remove solids and foul condensates are steam stripped to remove odorous organics. Aeration lagoon reduced BOD and toxicity.

DISCHARGE TYPE: Continuous surface.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): An amended Control Order was issued in 1988. The discharge of BOD is not to exceed 10 kg/ADMT. The suspended solids (RSP) is not to exceed 7.0 tonnes per day. The effluent is also required to be nontoxic.

MOE OR FEDERAL GUIDELINES: MOE guideline used for phosphorus.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Three of four trout bioassays conducted in 1990, indicated the final effluent to have been non-acutely lethal to test fish. The remaining sample had a measured 96 hour LC50 of > 100 % effluent.

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the combined effluent was not acutely lethal to test fish. An audit sample tested by MOE was also determined non-lethal.

11/16/90

000083-00-0(0) KIMBERLY-CLARK OF CANADA LTD. TERRACE BAY REPORT DATE: 14 NOV 91
CONTROL POINT: 0100, COMBINED DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	107043	101458	100353	84030	86967	90950	90883	101059	74370	91325	87378	81580	91449	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2959	1192	1168	1086	948	1016	908	882	1083	1994	1592	2030	1405	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
RESIDUE PARTIC.	ACTUAL	3350	4456	3865	4518	3980	4781	4071	3446	2614	3803	3772	3820	3873	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000083-00-0(0) KIMBERLY-CLARK OF CANADA LTD. TERRACE BAY REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, COMBINED DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	107065	101456	100365	84033	86965	90969	90874	101064	74372	91329	87286	84307	91674	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	3180	1360	1200	1210	891	1080	895	942	878	1990	1720	2050	1450	
KG /DAY (BOD5)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC	45.7	46.8	42.4	50.1	49.3	48.9	54.4	55.6	29.8	40.8	37.6	44	45.5	
KG /DAY (PPUT)	GUIDELINE	107	101	100	84	87	91	90.9	101	74.4	91.3	87.3	84.3	91.7	0
RESIDUE PARTIC.	CALC	3360	4470	3840	4510	3980	4780	4070	3450	2580	3830	3770	3830	3873	
KG /DAY (RSP)	REQUIREMENT														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Kraft Foods Ltd.
& PLANT LOCATION: Ingleside

IMISNO.: 0001940006

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Hoople Creek
INDIRECT: St. Lawrence River

DESCRIPTION OF ACTIVITY: Milk is made into cheese

EFFLUENT CHARACTERISTICS: Effluent is generated by the cleaning of cheese making equipment and contains dissolved and suspended milk solids.

EFFLUENT TREATMENT: Anaerobic digestion followed by extended aeration using diffused air.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges In Ontario.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (5), Suspended Solids (RSP) (7), Phosphorus (11)

REMEDIAL ACTIONS: Kraft has completed the first stage of the treatment plant upgrading, by installing an anaerobic pre-treatment stage. The company has entered into an agreement with the Township of Osnabruck for a combined treatment facility that will be designed to meet Ministry requirements.

COMMENTS: The discharge to Hoople Creek will be diverted municipal system when completed.

01/09/92

000194-00-0(6) KRAFT LIMITED — INGLESIDE — REPORT DATE: 16 JAN 92

CONTROL POINT: 0200, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2381	2370	2494	2519	1800	2447	2265	2400	2233	2332	2387	2672	2358	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	262	232	528	393	18	101	54.8	32.4	23.4	26.8	23.9	25.9	143	
KG /DAY (BOD5)	REQUIREMENT	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	5
PHOSPHOR UNF.TOT.	ACTUAL	24	21.3	20	21.4	0.63	33.5	9.5	9.6	10	11.9	11.5	14.2	15.6	
KG /DAY (PPUT)	GUIDELINE	2.38	2.37	2.49	2.52	1.8	2.45	2.27	2.4	2.23	2.33	2.39	2.67	2.36	11
RESIDUE PARTIC.	ACTUAL	131	197	219	212	20.7	247	103	25.9	24.6	36.6	42	88.7	112	
KG /DAY (RSP)	REQUIREMENT	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	7

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 23 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 36% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Lac D'Amiante Du Quebec Ltee.
& PLANT LOCATION: Aquarius Mine, Porcupine

IMISNO.:0001110005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Lagare Lake
INDIRECT: James Bay

DESCRIPTION OF ACTIVITY: Gold mining and milling to a concentrate.

EFFLUENT CHARACTERISTICS: Suspended solids.

EFFLUENT TREATMENT: Tailings impoundment area with clearwater settling pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): September 29, 1987.

EXCEEDANCES: Suspeneded Solids (RSP) (2)

REMEDIAL ACTIONS: Discharge regulated by a modified internal tailings management plan. Prior to milling operations restarting, a lift will be added to tailings area, increasing retention time.

COMMENTS: As of August 4, 1989 mill is on care and maintenance program. Shaft dewatering is discharged to tailings basin.

An audit sample collected from the final discharge effluent when tested by MOE was determined to had been non-lethal.

12/16/91

001110-00-0(5) LAC D'AMIANTE DU QUEBEC LTEE AQUARIUS MINE TIMMINS REPORT DATE: 14 NOV 91

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.01	0.01	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.013	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER UNF.TOT.	ACTUAL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.014	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL	0.5	0.5	0.4	0.6	0.3	0.5	0.4		0.3	0.3	0.9	0.1	0.436	
MG/L (NNH3FR)	GUIDELINE	10	10	10	10	10	10	10		10	10	10	10	10	0
LEAD UNF.TOT.	ACTUAL	0.2	0.03	0.01	0.01	0.06	0.01	0.06	0.01	0.01	0.01	0.01	0.02	0.037	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	8.01	7.2	7.14	7.12	7.19	7.8	7.64	7.37	7.4	7.27	7.13	7.13	7.37	
(PH)	GUIDELINE														0
PHOSPHOR FIL.TOT.	ACTUAL	0.53	0.18	0.29	0.11	0.46	0.1	1.22	0.08	0.01	0.09	0.01	0.03	0.26	
MG/L AS P (PPFT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	8.1	7.6	6.5	31.2	15.3	3.2	5.4	6.2	5.1	8.8	8.4	8.6	9.53	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	2
RESIDUE TOTAL	ACTUAL	339	4.8	279	318	84	138	230	232	220	195	224	270	211	
MG/L (RST)	GUIDELINE														
SULPHATE	ACTUAL	6.3	4.2	28	25.9	14.6	13.7	17.4	14	13.2	23.5	28.3	29.5	18.2	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.08	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.017	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 95, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Lac Minerals
& PLANT LOCATION: Macassa Division, Kirkland Lake

IMIS NO.: 0001410000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Amikougami Cr.
INDIRECT: Blanche River

DESCRIPTION OF ACTIVITY: Gold mining, milling and recovery using Cyanide Circuit Recovery.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of copper, nickel, zinc etc.

EFFLUENT TREATMENT: Natural degradation, hydrogen peroxide plant.

DISCHARGE TYPE: Seasonal.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (January 29, 1990) A Certificate of Approval for a two stage program to improve effluent quality has been issued.

MOE OR FEDERAL GUIDELINES: Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981 by C of A.

EXCEEDANCES: Copper (1), Cyanide (1), Iron (2)

REMEDIAL ACTIONS: The treatment plant commenced operation on April 25,1989. The company has upgraded operational procedures for the treatment plant.

COMMENTS: The data for two of four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge was not acutely lethal to test fish. However, one of the remaining samples was determined acutely lethal. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 72.7 %. The other sample produced a 96 hour LC50 > 100 % effluent.

12/16/91

000141-00-0(0) LAC MINERALS LTD., MACASSA DIV. KIRKLAND LAKE REPORT DATE: 28 NOV 91
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL	0.56	0.41	6.37	1.37	0.99	0.14	0.08	0.05	0.06	0.04	0.16	0.43	0.888	
MG/L (CCNAUR)	GUIDELINE	2	2	2	2	2	2	2	2	2	2	2	2	2	1
COPPER UNF.TOT.	ACTUAL	0.16	0.33	1.46	0.65	0.6	0.09	0.11	0.03	0.02	0.02	0.07	0.1	0.303	
MG/L (CUUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IRON UNF. TOT.	ACTUAL	0.25	0.25	1.06	0.78	0.72	0.44	1.07	0.79	0.5	0.56	0.37	0.45	0.603	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	2
PH	ACTUAL	8.08	7.64	8.04	7.56	7.63	7.86	7.97	7.77	7.77	7.67	8.03	7.56	7.80	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	5	5.25	8.25	6.5	12.4	6	9.2	11.3	10.5	7.07	9.25	7.75	8.20	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1990.

000141-00-0(0) LAC MINERALS LTD., MACASSA DIV. KIRKLAND LAKE REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		1665	5643	9157	189365	6789	8585	2836	1586	5387	10916	6731	22605	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.57	7.9	7.75	7.66	7.6	7.92	7.77	7.76	7.79	7.7	7.58	7.73	
(PH)	GUIDELINE														
CYANIDE AVAIL	CALC		1.16	62.2	10.7	186	0.769	0.644	0.179	0.0974	0.343	1.53	2.03	24.1	
KG /DAY (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.455	7.87	5.24	125	0.867	1.1	0.106	0.0265	0.175	0.715	0.579	12.9	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	CALC		0.51	7.46	11.5	35.3	5.63	3.33	0.0274	0.618	0.539	5.51	0.667	6.47	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		14.7	48.9	83.2	2132	46.5	69.3	39.7	17.8	161	124	63.2	255	
KG /DAY (RSP)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ABOVE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: LaFarge Canada Inc. Bath

IMISNO.: 0021390109

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE:

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Cement manufacture.

EFFLUENT CHARACTERISTICS: BOD5, Suspended solids and total phosphorus typical of domestic sewage.

EFFLUENT TREATMENT: Sewage lagoon.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Operational objectives for conventional lagoon treatment BOD5 is 30 mg/L and suspended solids (RSP) is 40 mg/L assessed on an annual average. Total phosphorus (PPUT) is 1 mg/L assessed on a monthly basis.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

03/17/92

002139-01-0(9) LAFARGE CANADA INC. - BATH CEMENT PLANT — BATH — REPORT DATE: 16 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL		11.1	36.1	11	10.5	6.6	10.3	5.7	6.2	4.6	5.6	11.5	10.8	
MG/L AS O (BOD5)	REQUIREMENT		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	30	0
PHOSPHOR UNF.TOT.	ACTUAL		0.09	0.07	0.07	0.05	0.08	0.05	0.04	0.1	0.08	0.09	0.06	0.071	
MG/L (PPUT)	REQUIREMENT		1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL		3.3	3.1	8.8	12.3	2.7	6	7.2	1.3	5.4	2.8	7.6	5.5	
MG/L (RSP)	REQUIREMENT		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	40	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 14, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

THIS CONTROL POINT IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Luzenac Inc.
& PLANT LOCATION: Foleyet

IMISNO.: 0096920004

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE:

RECEIVING WATERBODY: DIRECT: Crawford Creek
INDIRECT: Nat River

DESCRIPTION OF ACTIVITY: Mining and milling of talc.

EFFLUENT CHARACTERISTICS: Contains suspended solids.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (February 9, 1989)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Two samples of Minewater effluent were tested for acute toxicity as required under the MISA monitoring regulation and resulted in 96 hour LC50s > 100 % effluent.

12/16/91

009692-00-0(4) LUZENAC INC. - PENHORWOOD MINE SITE TIMMINS REPORT DATE: 4 DEC 91
CONTROL POINT: 0100, MINE WATER DISCHARGE 1990 DATA

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL			< 5										< 5	
MG/L (RSP)	GUIDELINE			15										15	

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 1, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN AUG 1990.

009692-00-0(4) LUZENAC INC. - PENHORWOOD MINE SITE TIMMINS REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, MINE WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL								674	590	874	724	32	579	
M3 /DAY (FTFLOW)	GUIDELINE														
PHOSPHOR UNF. TOT.	ACTUAL											1.21		1.21	
KG/DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL								2.15	1.79	2.67	2.19	0.127	1.79	
KG/DAY (RSP)	GUIDELINE														

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009692-00-0(4) LUZENAC INC. - PENHORWOOD MINE SITE TIMMINS REPORT DATE: 09 JAN 92
CONTROL POINT: 0200, QUARRY WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL								561	647	861	780	27	575	
M3 /DAY (FTFLOW)	GUIDELINE														
PHOSPHOR UNF. TOT.	ACTUAL											0.069		0.07	
KG/DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL								1.68	4.53	8.2	2.36	0.12	3.38	
KG/DAY (RSP)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ABOVE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: MacMillan Bloedel Limited — IMISNO.: 0001530005
& PLANT LOCATION: Sturgeon Falls Division, Sturgeon Falls

MOE REGION: Northeast — DISTRICT: North Bay

INDUSTRIAL SECTOR: Pulp and Paper — SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Sturgeon River to Lake Nipissing to French River Main Channel
INDIRECT: 124 km to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Two different processes are used on softwoods (Red and White pine) and hardwood (Maple, Poplar, Birch). Chips are thermal refined and glued to form hard-board. Chips are converted by the neutral sulphite semi-chemical process into corrugating medium.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, pulp) and dissolved organics (BOD)

EFFLUENT TREATMENT: Primary clarifier removes suspended solids. An anaerobic secondary treatment process was started up June 1990 for removal of dissolved organics (BOD) with optimum operation expected in June 1992.

DISCHARGE TYPE: Continuous, seven days a week; two separate outfalls (clean water effluent and anaerobic treatment plant effluent).

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (December 23, 1983) Loading requirements are based on the Control Order limit for suspended solids. BOD reduction is to be at the maximum degree practicable following two year optimization period.

EXCEEDANCES: Suspeneded Solids (RSP) (4)

REMEDIAL ACTIONS: To be determined via MISA limits regulation for pulp and paper sector.

COMMENTS: An audit sample of Clean Water Effluent P-1 was tested by the MOE and was determined acutely lethal to test fish with a 96 hour LC50 of 7.1 % effluent.

An audit sample of Treated Effluent P-2 was tested by the MOE and was determined acutely lethal to test fish with a 96 hour LC50 of 7.1 % effluent.

12/16/91

000153-00-0(5) MACMILLAN BLOEDEL LIMITED — STURGEON FALLS — REPORT DATE: 29 NOV 91

CONTROL POINT: 0700,

FLOW/LOADING PARAMETERS		1990 DATA JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	14456	14031	12674	13904	13815	13727	13323	14336	12042	7521	12189	11895	12826	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	34864	38151	36591	42427	39758	31975	16647	41207	28967	14948	24467	27263	31439	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	2259	2842	2828	2915	2353	2111	2992	2758	3525	2051	2674	3699	2751	
	REQUIREMENT	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	4

NOTE: S/C - SEE COMMENTS

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 66 % IN 1990.

000153-00-0(5) MACMILLAN BLOEDEL LIMITED — STURGEON FALLS — REPORT DATE: 09 JAN 92

S U M M A R Y FOR EMIS. TYPE: 30 PROCESS EFFLUENT — DISCHARGED INTO: 02/002/5430 FRENCH R. MAIN CHANNEL

INCLUDES CONTROL POINTS: 1200 1300

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL	14456	14030	12675	13929	13808	13742	13293	14336	12218	7521	12190	11895	12841	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	33956	38150	36591	42387	39600	32091	16401	41208	33071	12866	23999	27262	31465	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	2059	2842	2785	2915	2338	2117	2850	2758	2138	2051	2673	3699	2602	
	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

THE COMBINED EFFLUENT FROM CONTROL POINTS 1200 AND 1300 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINT 0700 (IMIS).

000153-00-0(5) MACMILLAN BLOEDEL LIMITED — STURGEON FALLS — REPORT DATE: 09 JAN 92

CONTROL POINT: 1200, CLEAN SEWER DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE	6888	6234	5677	6904	7324	7675	8020	8503	8006	3970	8415	7328	7079	
BOD 5 DAY KG /DAY (BOD5)	CALC GUIDELINE	24722	24692	22754	30796	29488	23720	9918	28815	28938	8576	19845	21268	22794	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE	283	565	999	993	744	483	555	588	790	323	823	694	653	

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000153-00-0(5) MACMILLAN BLOEDEL LIMITED — STURGEON FALLS — REPORT DATE: 09 JAN 92

CONTROL POINT: 1300, TREATED DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL GUIDELINE	7568	7796	6998	7025	6484	6067	5273	5833	4212	3551	3775	4567	5762	
BOD 5 DAY KG /DAY (BOD5)	CALC GUIDELINE	9234	13458	13838	11591	10112	8371	6483	12393	4133	4290	4154	5994	8671	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE	1776	2277	1786	1922	1594	1634	2295	2170	1348	1728	1850	3005	1949	

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THE COMBINED EFFLUENT FROM CONTROL POINTS 1200 AND 1300 (MISA), WAS PREVIOUSLY REPORTED AS CONTROL POINT 0700 (IMIS).

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Malette Kraft Pulp and Power, Smooth Rock Falls

IMISNO.: 0000860502

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Mattagami River; INDIRECT: Moose River to James Bay

DESCRIPTION OF ACTIVITY: Softwood (Black spruce, Jack pine, Balsam fir) is converted by the bleached kraft processes into market kraft pulp.

EFFLUENT CHARACTERISTICS: Contains suspended organic compounds from pulping process. Also contains chemicals that affect the alkalinity of the receiver.

EFFLUENT TREATMENT: Raw suspended solids waste loads are reduced in the mill by recovery systems for wet bark, reject knots from unbleached pulp and bleached fibre from spills. A steam stripper removes organic compounds (some odorous) from condensates. The total mill effluent passes through a primary clarifier, a settling pond and a foam pond.

DISCHARGE TYPE: Continuous diffuser to Mattagami River.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (November 7, 1989) A Control Order was issued in Nov. 1989 with a daily limit for BOD of 16.5 tonnes/day and a 30 day rolling average of 9.6 tonnes/day. The maximum daily net loading for suspended solids (RSP) is 6.5 tonnes/day and the 30 day rolling average limit is 4.0 tonnes/day.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: In order to improve effluent quality the company has prepared an action plan for replacing the black liquor recovery system, the brown stock screening system, the installation of a new chlorine dioxide plant in 1991 and 1992. Depending on effluent quality, a secondary effluent treatment plant will be considered with proposed construction in 1993 if required.

The data for eleven of twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 6.7 - 100 %. The other sample was determined as not acutely lethal. An audit sample tested by the MOE was determined not acutely lethal.

12/16/91

000086-05-0(2) MALETTE INC., KRAFT PULP AND POWER DIV. SMOOTH ROCK FALLS REPORT DATE: 3 DEC 91
CONTROL POINT: 0400, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	47300	49240	50010	49860	49290	53670	56761	52440	53330	55280	50724	45165	51089	
	GUIDELINE														
PH (PH)	ACTUAL	6.3	4.8	4.7	3.9	4.9	3.4	5.6	5.1	6.4	5	4.8	8.7	5.3	
	GUIDELINE														
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	10600	7600	8400	8200	7900	7400	7100	7100	7400	6700	7800	7900	7842	
	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	1400	1200	1400	1600	1600	1700	2100	2000	2000	2100	1900	2100	1758	
	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000086-05-0(2) MALETTE INC., KRAFT PULP AND POWER DIV. SMOOTH ROCK FALLS REPORT DATE: 09 JAN 92
CONTROL POINT: 0400, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL	47922	49309	50016	49189	49287	54205	58385	52444	52296	55275	50724	45166	51185	
	GUIDELINE														
PH (PH)	CALC	6.3	4.79	4.69	4.31	4	3.35	5.6	5.07	6.51	4.99	4.78	8.6	5.25	
	REQUIREMENT														
BOD 5 DAY KG /DAY (BOD5)	CALC	10943	7245	8560	7689	7658	8252	6847	7496	7314	7780	8922	7754	8038	
	REQUIREMENT														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	1454	1227	1429	1452	1593	1734	2135	1788	2030	2165	2001	2156	1763	
	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Mattabi Mines Ltd.
& PLANT LOCATION: Sturgeon Lake Area

IMISNO.:0042110106

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Bell River, Sturgeon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Crushed ore is milled into zinc concentrate

EFFLUENT CHARACTERISTICS: Contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Tailings decant is limed for metals precipitation, metal hydroxide precipitates are settled, clearwater recycled to mill process, decant effluent discharged.

DISCHARGE TYPE: Continuous decanting.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Performance is assessed by "Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981".

EXCEEDANCES: Suspeneded Solids (RSP) (1), pH (4), Iron (2)

REMEDIAL ACTIONS: Mine Operations were suspended in May, 1991.

COMMENTS:

11/06/90

004211-01-0(6) MATTABI MINES LTD. IGNACE REPORT DATE: 6 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	12720	11470	10650	16990	20310	12560	12410	13370	15340	6430	4370	2800	11618	
M3 /DAY (FTFLOW)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	0.526	0.533	0.72	0.275	1.49	1.15	0.84	0.794	0.655	0.394	0.29	0.36	0.669	
MG/L (FEUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	2
PH	ACTUAL	10.6	10.3	10.6	11	9.9	10.2	9.8	9.5	10.5	10.7	11.3	11	10.5	
(PH)	GUIDELINE														4
RESIDUE PARTIC.	ACTUAL	5	6	7	3	8	15	24	13	9	1	2	7	8.3	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	1
ZINC UNF.TOT.	ACTUAL	0.166	0.14	0.351	0.115	0.328	0.315	0.251	0.624	0.145	0.099	0.067	0.094	0.225	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 85% IN 1990.

THIS COMPANY IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: McBean Mines Ltd. Dobie

IMISNO.: 0051730000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Victoria Creek to Misema River to Blanch River
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold mining and Recovery Using Merryl-Crowe Process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, nickel, zinc, solids.

EFFLUENT TREATMENT: SO2/air cyanide destruct system + tailings ponds.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981.

EXCEEDANCES: Phenols (1)

REMEDIAL ACTIONS: None.

COMMENTS: The operation has been shutdown since October 1987 and is in a care of maintenance mode. The company has been monitoring the final discharge at the Little Larder Lake outflow.

12/16/91

005173-00-0(0) MCBEAN MINE
CONTROL POINT: 0202, DOBIE
FLOW/CONCENTRATION PARAMETERS — 1990 DATA — REPORT DATE: 9 JAN 92

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC FIL.TOT.	ACTUAL	0.005	0.0063	0.01355	0.01	0.0079	0.005	0.0133	0.005	0.005	0.01	0.01	0.01	0.008	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE FREE	ACTUAL	0.006	0.005	0.006	0.005	0.005	0.011	0.005	0.005	0.006	0.005	0.005	0.005	0.006	
MG/L AS HCN	GUIDELINE	2	2	2	2	2	2	2	2	2	2	2	2	2	0
COPPER FIL.TOT.	ACTUAL	0.025	0.021	0.076	0.025	0.026	0.038	0.002	0.019	0.039	0.067	0.016	0.031	0.032	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON FIL.TOT.	ACTUAL	0.943	0.414	1.2	0.342	0.156	0.984	0.321	0.317	0.238	0.213	0.163	0.226	0.460	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL FIL.TOT.	ACTUAL	0.007	0.007	0.010	0.021	0.016	0.035	0.010	0.004	0.006	0.176	0.099	0.019	0.034	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL	0		0										0	
MG/L (NNH3FR)	GUIDELINE	10		10										10	0
LEAD FIL.TOT.	ACTUAL	0.01	0.01	0.02	0.02	0.01	0.0124	0.0407	0.01	0.01	0.0373	0.02	0.02	0.018	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7	7.4	6.2	6.7	7.5	6.6	6.8	7.4	7.6	6.6	7.2	6.6	6.97	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	3	9	9	11	6	30	3	3	4	3	3	3	7.25	
UG/L PHENOL	GUIDELINE	20	20	20	20	20	20	20	20	20	20	20	20	20	1
SULPHATE FIL.REAC	ACTUAL	82.8	94	41.7	12.9	50.4	51.4	58.7	56.8	145	53.4	70.1	21.6	61.5	
MG/L AS CR	GUIDELINE														
ZINC FIL.TOT.	ACTUAL	0.228	0.295	0.173	0.156	0.0481	0.0476	0.0417	0.0365	0.0503	0.0392	0.387	0.041	0.129	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.5 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 110, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1990.

THIS COMPANY IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Minnova Inc. IMIS NO.: 0096100003
& PLANT LOCATION: Winston Lake Project, Schreiber

MOE REGION: Northwest DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 0591, 0594

RECEIVING WATERBODY: DIRECT: Whitesand River
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Sulphide ore is mined and milled into copper and zinc.

EFFLUENT CHARACTERISTICS: Contains Heavy metals, suspended solids, phosphorus, ammonia, oil and grease, phenols, BOD5.

EFFLUENT TREATMENT: Mill tailings water treated with lime to effect pH control and precipitate metals in a sludge pond. Sludge pond effluent may receive acid treatment prior to polishing pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0001-87-007 issued Dec. 23, 1987.

Total suspended solids (RSP)	15 mg/L	Ammonia (expressed as N)(NNH3FR)	0.2 mg/L
Zinc (ZNUT)	0.5 mg/L	Arsenic (ASUT)	0.5 mg/L
Oil and Grease (SOLEXT)	15 mg/L	Phosphorus	1 mg/L
Copper (CUUT)	0.3 mg/L	(except when discharge <4.5 kg/day)	
Biochemical Oxygen Demand (BOD5)	15 mg/L	Lead (PBUT)	0.2 mg/L
Nickel (NIUT)	0.5 mg/L	pH	5.5 to 10.6

MOE OR FEDERAL GUIDELINES: Phenol objective 0.02 mg/L.

EXCEEDANCES: Ammonia (7), Lead (1), Phenols (1), Zinc (4)

REMEDIAL ACTIONS: Chemical treatment for Ammonia + increased retention time in tailings basin.

COMMENTS: Four trout bioassays conducted in 1990, indicated the final effluent to have been non-acutely lethal to test fish.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined non-lethal.

04/24/92

009610-00-0(3) MINNOVA INC., WINSTON LAKE MINE — SCHREIBER — REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	628	0	0	0	1505	2168	1716	672	1592	2054	2016	1072	1491	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.366	0*			0.001	0	0.002	0.005	0.001	0.001	0.001	0.001	0*	
MG/L (ASUT)	REQUIREMENT	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
BOD 5 DAY	ACTUAL					4.2	4.9	4.2	2.5	6.8	1.5	1.1	11.9	4.64	
MG/L AS O (BOD5)	REQUIREMENT					15	15	15	15	15	15	15	15	15	0
COPPER UNF.TOT.	ACTUAL	0.01	0*			0.02	0.035	0.233	0.146	0.011	0.021	0.004	0.032	0*	
MG/L (CUUT)	REQUIREMENT	0.3	0.3			0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
NICKEL UNF.TOT.	ACTUAL	0.01	0*			0.012	0.022	0.015	0.01	0.005	0.036	0	0.012	0*	
MG/L (NIUT)	REQUIREMENT	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
NH3-N FIL.REAC	ACTUAL	0.166				1.186	1.027	1.115	1.426	1.445	1.835	2.46	0.17	1.2	
MG/L (NNH3FR)	REQUIREMENT	0.2				0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	7
LEAD UNF.TOT.	ACTUAL	0.01	0*			0.024	0	0.03	0.02	0.005	0.009	0.015	0.01	0*	
MG/L (PBUT)	REQUIREMENT	0.2	0.2			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1
PH	ACTUAL	6.7				7.28	8.2	7.33	7.93	8	7.91	8.7	8.93	7.89	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL					0	0	0.142	0	0	0	0	0.46	0.075	
MG/L (PHNOL)	REQUIREMENT					0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1
PHOSPHOR UNF.TOT.	ACTUAL	0.19				0.1	0	0.13	0.05			0.05	0.04	0.080	
MG/L AS P (PPUT)	REQUIREMENT	1				1	1	1	1			1	1	1	0
RESIDUE PARTIC.	ACTUAL	5.53				6.7	17	13.1	12.67	6.5	23.75	7.75	3.43	10.7	
MG/L (RSP)	REQUIREMENT														
SOLVENT EXTRACT	ACTUAL					1	2	2.45	1	1	1	1.8	10.9	2.64	
MG/L (SOLEXT)	REQUIREMENT														
ZINC UNF.TOT.	ACTUAL	0.59				0.606	0.372	0.35	0.384	0.53	0.926	0.364	0.224	0.483	
MG/L (ZNUT)	REQUIREMENT	0.5				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4

NOTE: 0* - INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.60

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 OUT OF 90, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1990.

009610-00-0(3) MINNOVA INC., WINSTON LAKE MINE SCHREIBER REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL					1646	2257	1909	1214	1519	2599	1954	1100	1775	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL					7.37	8.3	6.95	7.54	8.06	7.87	8.71	8.77	7.95	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	CALC					0.001	0.00226	0.00382	0.00493	0.00292	0.0052	0.00278	0.0022	0.00314	
KG /DAY (ASUT)	REQUIREMENT														
COPPER UNF.TOT.	CALC					0.0475	0.07	0.0568	0.0269	0.0186	0.0558	0.0164	0.014	0.0383	
KG /DAY (CUUT)	REQUIREMENT														
NICKEL UNF.TOT.	CALC					0.0173	0.0386	0.0271	0.0144	0.0152	0.084	0.0195	0.011	0.0284	
KG /DAY (NIUT)	REQUIREMENT														
LEAD UNF.TOT.	CALC					0.0176	0.0226	0.0191	0.0172	0.0194	0.0531	0.0308	0.033	0.0266	
KG /DAY (PBUT)	REQUIREMENT														
PHENOLS UNF-REAC	CALC					0.000196	0.000342	0.000378	0.000784	0.000094	0.000614	0.00037	0.000231	0.000376	
KG /DAY (PHNOL)	REQUIREMENT														
PHOSPHOR UNF.TOT.	CALC					0.0982	0.171	0.189	0.0376	0.0471		0.0832	0.115	0.106	
KG /DAY (PPUT)	REQUIREMENT														
ZINC UNF.TOT.	CALC					0.861	0.709	0.578	0.421	0.994	2.68	0.792	0.313	0.919	
KG /DAY (ZNUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC					11.9	35.2	42.1	16.8	7.88	59.1	16.9	5.94	24.5	
KG/DAY (RSP)	REQUIREMENT														
SOLVENT EXTRACT.	CALC					2.68	4.88	3.27	1.69	1.52	2.97	2.49	1.1	2.58	
KG/DAY (SOLEXT)	REQUIREMENT														
AMMONIA FIL.REAC.	CALC														
KG/DAY (NNH3FR)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Mitsubishi Canada Inc.
& PLANT LOCATION: Midland

IMIS NO.: 0001880004

MOE REGION: Central

DISTRICT: Barrie

INDUSTRIAL SECTOR: Metal, Plastic Fabricating & Finishing

SIC CODE: 334,3399

RECEIVING WATERBODY: DIRECT: Wye River
INDIRECT: Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Manufactures television tubes.

EFFLUENT CHARACTERISTICS: Contains trace organics and inorganics (fluorides).

EFFLUENT TREATMENT: Chemical Flocculation - Sedimentation.

DISCHARGE TYPE: Continuous - treated wastewater combines with cooling waters, roof and parking lot drainage prior to discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval #4-300-002-87-876

Fluoride (FFIDUT)	500 kg/four week period
Suspended solids (RSP)	20 mg/L.

EXCEEDANCES: Chromium +6 (1)

REMEDIAL ACTIONS: A faulty maintenance procedure may have caused this guideline exceedance. Maintenance procedures have been reviewed with a view to preventing a recurrence of this problem.

COMMENTS: Provincial guideline for chromium was exceeded. Company has suggested that maintenance procedures on their chilled water system may be the cause.

11/15/91

000188-00-0(4) MITSUBISHI ELECTRONICS INDUSTRIES CANADA INC MIDLAND REPORT DATE: 4 DEC 91
CONTROL POINT: 0200, 1990 DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	986	1029	1074	1030	1047	1070	1083	1035	959	947	881	1036	1015	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.24	7.24	7.2	7.46	6.93	7.56	7.48	7.38	7.39	7.47	7.52	7.78	7.39	
(PH)	GUIDELINE														0
CHROMIUM +6	ACTUAL	0.091	0.074	0.076	0.06	0.136	0.263	0.068	3.75	0.106	0.165	0.122	0.087	0.417	
KG /DAY (CR6UR)	GUIDELINE	0.986	1.03	1.07	1.03	1.05	1.07	1.08	1.04	0.959	0.947	0.881	1.04	1.01	1
FLUORIDE UNF.TOT.	ACTUAL	6.4	9.3	8.7	8.9	9	8.9	7.9	9.3	6.9	6.9	7.7	9.3	8.27	
KG /DAY (FFIDUT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	12	17	12	12	10	10	15	8	10	10	7	9	11	
KG /DAY (RSP)	GUIDELINE														
RESIDUE TOTAL	ACTUAL	671	919	922	798	682	606	672	630	601	560	523	656	687	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Nabisco Brands (previously reported as Canadian Canners) St. Davids Plant, St. Davids

IMIS NO.: 0001930007

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 102

RECEIVING WATERBODY: DIRECT: Four Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Food processor.

EFFLUENT CHARACTERISTICS: Contains Total Suspended Solids and Organics.

EFFLUENT TREATMENT: Facultative lagoon.

DISCHARGE TYPE: Batch discharge.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives set by the discharge design criteria for lagoons.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

04/22/92

000193-00-0(7) NABISCO BRANDS ST DAVIDS REPORT DATE: 14 FEB 92

CONTROL POINT: 0100,

1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	2350	2140	0	0	0	0	0	0	0	2245	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL				18.8	10.7								14.8	
KG /DAY (BOD5)	GUIDELINE				35.3	32.1								33.7	0
PHOSPHOR UNF.TOT.	ACTUAL				0.5	0.6								0.55	
KG /DAY (PPUT)	GUIDELINE				2.35	2.14								2.25	0
RESIDUE PARTIC.	ACTUAL				16.5	23.5								20	
KG /DAY (RSP)	GUIDELINE				35.3	32.1								33.7	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 6, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Nestle Enterprises Ltd.
& PLANT LOCATION: Chesterville

IMISNO.: 0000900001

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1089

RECEIVING WATERBODY: DIRECT: South Nation River
INDIRECT: Ottawa River

DESCRIPTION OF ACTIVITY: Manufacture of food and beverage products.

EFFLUENT CHARACTERISTICS: Contains suspended solids (insoluble organics) and food organics.

EFFLUENT TREATMENT: Secondary treatment with 4 month aerated retention lagoon.

DISCHARGE TYPE: Continuous - except for July and August 1991.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval for phosphorus removal equipment issued 1988 specifies PPUT (phosphorus) requirement. Requirements for BOD5, and RSP (suspended solids) are set out in original C. of A. issued for sewage works requirement.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (2), Suspended Solids (RSP) (2)

REMEDIAL ACTIONS: Company hired a consultant to evaluate and optimize the operation of the treatment system. Implementation of specific recommendations initiated in 1990.

COMMENTS:

01/09/92

000090-00-0(1) NESTLE ENTERPRISES LTD. CHESTERVILLE REPORT DATE: 10 DEC 91

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	618	378	431	887	1793	614			316	1233	1907	1413	959	
M3 /DAY (FTFLOW)	REQUIREMENT	2045	2045	2045	2045	2045	2045			2045	2045	2045	2045	2045	0
BOD 5 DAY	ACTUAL	22	9	20	10	25	20			3.5	21	35	51	21.7	
KG /DAY (BOD5)	REQUIREMENT	30.7	30.7	30.7	30.7	30.7	30.7			30.7	30.7	30.7	30.7	30.7	2
PHOSPHOR UNF.TOT.	ACTUAL	0.3	0.2	3	0.3	0.5	0.3			0.05	0.4	0.5	0.6	0.615	
KG /DAY (PPUT)	REQUIREMENT	2.05	2.05	2.05	2.05	2.05	2.05			2.05	2.05	2.05	2.05	2.05	0
RESIDUE PARTIC.	ACTUAL	22	19	22	35	29	16			0.6	9	27	31	21.1	
KG /DAY (RSP)	REQUIREMENT	30.7	30.7	30.7	30.7	30.7	30.7			30.7	30.7	30.7	30.7	30.7	2

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 40, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Nitrochem Inc.
& PLANT LOCATION: Maitland

IMISNO.: 0001710003

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 372

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Nitric acid and different grades of ammonia based fertilizer are made.

EFFLUENT CHARACTERISTICS: Contains nitrogenous wastes.

EFFLUENT TREATMENT: An evaporation-condensation process has been used since 1987 to recover nitrogen compounds for recycling into nitrogen based fertilizer solutions.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Control of Industrial Phosphorus Discharges in Liquid Effluents - Ontario (October 1976) and Objectives for the Control of Industrial waste Discharges in Ontario (Provincial/1966).

EXCEEDANCES: Phosphorus (8), pH (5)

REMEDIAL ACTIONS: Company has submitted proposal for steam stripper to reduce ammonia nitrogen and total Kjeldahl Nitrogen in the plant effluent. The proposal is under review by Ministry staff. A Control Order for Spills Reduction Strategy to be developed in 1992. A comprehensive site inspection in 1991 and the MISA BAT Options report will provide the basis for the identification and implementation of final effluent control technology.

COMMENTS: The MISA Monitoring Regulations requirements commenced in December 1989. The 1979 Requirement and Direction issued to former Genstar cannot be applied to the discharge from Nitrochem.

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 2.4 - 14.1 %. An audit sample tested by the MOE was also determined as acutely lethal. The 96 hour LC50 was 14.1 % effluent.

04/22/92

000171-00-0(3) NITROCHEM INC. MAITLAND REPORT DATE: 11 DEC 91

CONTROL POINT: 0400, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	667	774	586	768	863	1485	667		475	1058	808	1101	841	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.15	9.37	9.28	9.36	9.49	9.23	10	9.85	9.64	9.72	9.9	9.47	9.5	
(PH)	GUIDELINE														5
K'DAHL N TOTAL	CALC	87.1	140	71.9	115	216	177	83.1		49.9	125	78.7	115	114	
KG /DAY (NNTKUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.325	0.232	0.734	1.12	1.15	1.07	1		0.623	1.41	1.08		0.874	
KG /DAY (PPUT)	GUIDELINE	0.68	0.662	0.569	0.611	0.578	0.489	0.444		0.34	0.952	0.844		0.617	8

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 40.9 % IN 1990.

CONTROL POINT 0400 (MISA) ALSO CONTAINS THE EFFLUENT FROM THE PREVIOUSLY REPORTED CONTROL POINTS 0100 AND 0200 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Noranda Forest Inc. (previously reported as Fraser Inc.) — IMISNO.:0000940007
& PLANT LOCATION: Thorold — DISTRICT: Welland

MOE REGION: West Central

INDUSTRIAL SECTOR: Pulp and Paper — SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Fine paper is made from pulp and from deinked ledger paper.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge plant on deinking effluent removes organics attributed by ink by biological degradation. Clarifier on total mill effluent removes solids. Some clarified effluent is recycled to the mill.

DISCHARGE TYPE: Continuous through an outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (1978) BOD_5 limit concentration of 150 ppm. Target load for suspended solids set by MOE Pulp and Paper Committee. A new Certificate of Approval was issued in December 1990 with BOD5 and suspended solids requirements.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (9)

REMEDIAL ACTIONS: The non-compliance is attributed to equipment failures and process upsets resulting in by-passes of the waste water treatment system. A Certificate of Approval was issued in December 1990, for an upgraded treatment plant which included a dechlorination facility. This work was completed, however, non-compliance has continued into 1991. As a result of the non-compliance, the company has commenced in 1991 an "in-plant" Spill Prevention Strategy including further process changes and upgrading its maintenance program.

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in method of calculation of the loading. Summary data were reported in previous years as NET data. The data reported for 1990 should not be compared to previous years.

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Circular Clarifier effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 1.4 - 80.6 %. Two audit samples tested by the MOE were also determined as acutely lethal. The 96 hour LC50s were 34.6 and 55.9 % effluent.

04/22/91

000094-00-0(7) NORANDA FOREST INC., RECYCLED PAPERS THOROLD REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	20716	20963	21118	21206	20404	22989	22507	22956	22877	23852	23382	23658	22219	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2090	2076	3462	3811	3331	4230	3633	3829	4029	3845	3609	3349	3441	
KG /DAY (BOD5)	REQUIREMENT	3107	3151	3167	3181	3061	3448	3376	3451	3432	3578	3507	3549	3334	9
RESIDUE FILTERED	CALC	12790	9761	12476	15390	11263	21936	14132	15141	12382	13706	15205	7960	13512	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	CALC	927	2034	1294	2044	2185	3568	940	928	915	1145	1168	1368	1543	
KG /DAY (RSP)	GUIDELINE														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 25 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Noranda Minerals Inc. IMISNO.: 0042110114
& PLANT LOCATION: Lyon Lake Division, Sturgeon Lake

MOE REGION: Northwest DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Lyon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Ore is removed from underground and open pit for zinc recovery at Mattabi Mines Ltd.

EFFLUENT CHARACTERISTICS: Treated wastewater contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Lime precipitation of dissolved metals, settling of metal hydroxides.

DISCHARGE TYPE: Continuous decanting.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: "Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981".

EXCEEDANCES: pH (2)

REMEDIAL ACTIONS: Mine operations were suspended in March, 1991.

COMMENTS:

11/06/90

004211-01-1(4) NORANDA MINERALS INC. LYON LAKE DIVISION IGNACE REPORT DATE: 6 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON UNF.TOT.	ACTUAL	0.048	0.087	0.075	0.04	0.046	0.103	0.028	0.23	0.053	0.06	0.085	0.173	0.086	
MG/L (FEUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	10.98	11.11	9.15	9.1	9.55	8.25	8.68	8.91	8.83	9.20	9.69	9.5	9.41	
(PH)	GUIDELINE														2
RESIDUE PARTIC.	ACTUAL	1.75	2.33	3	0	10.1	7.38	8.5	2.2	1.5	4	5.75	7.33	4.49	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL	0.104	0.066	0.22	0.2	0.037	0.172	0.073	0.085	0.071	0.084	0.182	0.149	0.12	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1990.

THIS COMPANY IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Noranda Minerals Inc.
& PLANT LOCATION: GECO Division, Manitouwadge

IMISNO.: 0001800002

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Mose Lake
INDIRECT: 154 km to Lake Superior

DESCRIPTION OF ACTIVITY: Base metal mining.

EFFLUENT CHARACTERISTICS: Contains suspended solids, heavy metals, and ammonia.

EFFLUENT TREATMENT: pH adjustment and clarification of metal precipitates from tailing area and seepage.

DISCHARGE TYPE: Continuous surface.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: "Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981".

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to have been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.1 - 19.7 %. An audit sample tested by the MOE was also determined acutely lethal with a 96 hour LC50 of 27.2 % effluent.

03/21/91

000180-00-0(2) NORANDA MINERALS INC. GECO DIVISION — MANITOUWADGE — REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE — 1990 DATA

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	3280	4935	3612	5811	5805	5543	5909	4546	5614	6036	6297	5796	5265	
	GUIDELINE														
COPPER UNF.TOT. MG/L AS (CUUT)	ACTUAL	0.08	0.13	0.24	0.15	0.14	0.09	0.14	0.16	0.06	0.8	0.13	0.58	0.23	
	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT. MG/L (FEUT)	ACTUAL	0.3	0.32	0.31	0.61	0.39	0.5	0.45	0.35	0.42	0.39	0.37	0.78	0.43	
	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH (PH)	ACTUAL	9.05	9.13	8.95	9.00	8.98	9.35	9.25	9.23	9.28	8.80	9.15	8.90	9.09	
	REQUIREMENT														0
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	3.25	2.5	8.75	4	4.6	3.75	3	5	3.25	2.8	4.75	4.5	4.18	
	REQUIREMENT	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT. MG/L (ZNUT)	ACTUAL	0.06	0.05	0.04	0.06	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.13	0.07	
	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE WASTEWATER DISCHARGE SUMMARY PAGE.

000180-00-0(2) NORANDA MINERALS INC. GECO DIVISION — MANITOUWADGE — REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL		5142	5070	6430	6143	5521	5880	6994	5881	6316	6915	6251	6049	
	GUIDELINE														
PH (PH)	ACTUAL		9.11	9.1	9.14	9.26	9.56	9.48	9.31	9.41	9.04	9.19	9.2	9.25	
	GUIDELINE														
COPPER UNF.TOT. KG /DAY (CUUT)	CALC		0.768	1.09	1.03	0.888	0.648	0.967	1.34	0.334	0.708	0.609	3.29	1.06	
	GUIDELINE														
IRON UNF.TOT. KG /DAY (FEUT)	CALC		0.463	0.656	2.14	0.88	0.605	0.789	1.48	1.57	1.34	1.96	2.64	1.32	
	GUIDELINE														
NH3-N TOTAL KG /DAY (NNHTFR)	CALC		314	228	300	253	280	297	355	340	362	315	258	300	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC		26.5	25.3	35.1	55.5	178	178	99.8	212	79.7	80.2	72.7	94.7	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC		0.166	0.134	0.308	0.385	0.285	0.209	0.24	0.398	0.376	0.422	0.704	0.33	
	GUIDELINE														

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ABOVE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Northern Wood Preservers Inc. Thunder Bay

IMISNO.: 0001820000

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Wood Preserving

SIC CODE: 251, 2591

RECEIVING WATERBODY: DIRECT: Thunder Bay Harbour
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Timber, ties and utility poles are treated with creosote or pentachlorophenol preservative.

EFFLUENT CHARACTERISTICS: Effluent contains low levels of phenols, pentachlorophenol and traces of dioxin.

EFFLUENT TREATMENT: Secondary, activated sludge.

DISCHARGE TYPE: Continuous subsurface.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued in Nov. 1987 to control suspended solids, phenol and pentachlorophenol. Suspended solids (RSP) limits are - 25 mg/L single day and 15 mg/L on 30 working day average. Phenol (PHNOL) limits - 30 µg/L single day and 15 µg/L on 30 working day average. Pentachlorophenol limits - 4000 ng/L single day and 2000 ng/L on 60 working day average.

EXCEEDANCES: Phenols (4), Pentachlorphenols (1)

REMEDIAL ACTIONS: Ordered control measures "on hold" awaiting the outcome of an appeal.

COMMENTS: One trout bioassay conducted in 1990, indicated the final effluent to have been non-acutely lethal to test fish.

11/05/90

000182-00-0(0) NORTHERN WOOD PRESERVERS — THUNDER BAY — REPORT DATE: 14 NOV 91

CONTROL POINT: 0100,

1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	
M3 /DAY (FTFLAV)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	14.5	6.36	7.57	11.9	0.922	41.4	45.3	28.1		74.2			25.6	
UG/L (PHNOL)	REQUIREMENT	20	20	20	20	20	20	20	20		20			20	4
RESIDUE PARTIC.	ACTUAL	6.35	5.62	6.59	4.09	13.1	7.45	10.9	8.05		7.87			7.78	
MG/L (RSP)	REQUIREMENT	15	15	15	15	15	15	15	15		15			15	0
PENTACHL PHENOL	ACTUAL	85.4	61	33.3	1152	31586	3058	1321	1		348			4183	
NG/L (X3PCPH)	REQUIREMENT	4000	4000	4000	4000	4000	4000	4000	4000		4000			4000	1

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1990.

THIS COMPANY IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Norton Company
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001650001

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: There are 4 discharges to the Welland River; results are a composite of all discharges.

EFFLUENT TREATMENT: Oil water separation, pH adjustment and solids precipitation on product process waste water are carried out.

DISCHARGE TYPE: Continuous through a submerged outfall.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

COMMENTS: This company converted to MISA monitoring using "Gross" Loadings in 1989 and should not be compared to Net Data previously reported. The reported increase in RSP loadings does not imply a decrease in effluent quality.

The data for ten of twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Sewer B effluent was not acutely lethal to test fish. The other samples, when tested, resulted in 96 hour LC50s > 100 % effluent. Two audit samples were tested by the MOE and were determined as not acutely lethal to test fish.

The data for seven of eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Sewer C effluent was not acutely lethal to test fish. However, three of the remaining samples was determined acutely lethal. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 75.0 - 100 %. The other sample, resulted in a 96 hour LC50 > 100 % effluent.

The data for eight of eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Sewer D effluent was not acutely lethal to test fish. The other samples, when tested, resulted in 96 hour LC50s > 100 % effluent. An audit sample was tested by the MOE and was determined as not acutely lethal to test fish.

03/08/91

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92
S U M M A R Y FOR EMIS. TYPE: 31 COMBINED EFFLUENT DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.
INCLUDES CONTROL POINTS: 0200 0300 0400

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL	8761	8702	8464	8939	7610	7146	10142	10016	9258	8866	7682	6486	8506	
	GUIDELINE														
PH DAILY (PHAVG)	CALC	8.28	8.05	8.02	8.04	7.78	7.83	7.88	7.76	7.84	7.85	7.94	7.7	7.91	
	GUIDELINE														0
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	98	89	94	76	177	89	73	85	111	98	158	111	105	
	GUIDELINE														
SOLVENT EXTRACT. KG /DAY (SOLEXT)	ACTUAL	33	10	20.5	12.6	10.6	9.4	13.7	18.8	13	10.2	10		14.7	
	GUIDELINE	132	128	129	132	112	108	152	150	144	130	117		130	0

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92

CONTROL POINT: 0200, SEWER 'B' DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	2738	2774	2638	2911	1364	666	3175	3110	2986	3245	3460	3543	2718	
M3 /DAY (FTFLAV)	GUIDELINE														
PH DAILY	CALC	8.11	7.86	8.02	8.31	7.77	7.56	7.88	7.86	7.65	8.25	8.03	7.93	7.94	
(PHAVG)	GUIDELINE														0
RESIDUE PARTIC.	CALC	19.6	20.8	24	28.6	49.6	9.75	47.9	6.22	60.3	55.3	68.4	70.9	38.4	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	19.9	3.68	3.94	2.77	1.82	0.606	3.06	4.45	6	3.73	4.28		4.9	
KG /DAY (SOLEXT)	GUIDELINE	37.8	41.6	39.8	41.6	18.4	9.09	45.8	47.9	45.5	46.3	52.1		38.7	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92

CONTROL POINT: 0300, SEWER 'C' DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	2083	1997	2146	2032	2464	2212	1722	974	1856	2013	2043	1003	1879	
M3 /DAY (FTFLAV)	GUIDELINE														
PH DAILY	CALC	8.68	8.31	7.94	7.85	7.8	8.13	8.04	7.62	8	7.65	7.9	7.41	7.94	
(PHAVG)	GUIDELINE														0
RESIDUE PARTIC.	CALC	39.2	34.3	34.9	23.9	63.7	39.5	12.5	39.3	25.1	21.3	44.9	19.9	33.2	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	2.52	2.46	5.36	2.61	3.12	2.19	3.85	1.38	2.32	1.92	2.91		2.79	
KG /DAY (SOLEXT)	GUIDELINE	33.2	28	31.3	30.8	37.5	32.8	27	12.6	28.2	28.8	32.9		29.4	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 23 JAN 92

CONTROL POINT: 0400, SEWER 'D' DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	3940	3931	3680	3996	3782	4268	5245	5932	4416	3608	2179	1940	3910	
M3 /DAY (FTFLAV)	GUIDELINE														
PH DAILY	CALC	8.04	7.98	8.1	7.97	7.76	7.79	7.73	7.8	7.88	7.65	7.88	7.77	7.86	
(PHAVG)	GUIDELINE														0
RESIDUE PARTIC.	CALC	31.6	24.6	36.7	32.3	152	63.4	26.2	43.2	25.3	22.8	33.3	32.5	43.7	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	10.6	3.9	11.2	7.2	5.66	6.61	6.76	13	4.69	4.5	2.78		6.99	
KG /DAY (SOLEXT)	GUIDELINE	61.3	58.5	57.5	60	56.4	65.8	79.5	89.5	70.4	54.8	31.5		62.3	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Novacor Chemicals Canada Ltd. (previously reported as Novacor Ltd.) Mooretown

IMIS NO.: 0000380105

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Ethylene from neighbouring petroleum refineries is converted into polyethylene

EFFLUENT CHARACTERISTICS: Contains organic compounds at trace levels.

EFFLUENT TREATMENT: Settling.

DISCHARGE TYPE: Discharge through an extended outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Suspeneded Solids (RSP) (7)

REMEDIAL ACTIONS: Novacor installed a pond liner in the process effluent pond in July, 1990 to reduce total suspended solids (RSP). Following installation of the lining, Novacor has experienced two minor exceedances of the 15 ppm guideline in November, 1990 (15.8 ppm) and March 1991 (15.8 ppm). Novacor is pursuing further options to reduce suspended solids levels.

COMMENTS: The data for nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent was not acutely lethal to test fish. An audit sample tested by the MOE was also determined as non-lethal.

01/08/91

000038-01-0(5) NOVACOR CHEMICALS CANADA LTD. MOORETOWN REPORT DATE: 3 MAR 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1680	1608	1526	1775	1640	1630	1731	1909	1759	1672	1610	1617	1680	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.95	7.92	8.02	8.25	8.09	8.71	8.5	8.06	8.04	7.93	7.89	7.78	8.1	
(PH)	GUIDELINE														0
PHOSPHOR UNF.TOT.	CALC	0.141	0.363	0.847	0.523	0.438	0.747	0.878	0.998	0.763	0.499	0.536	0.555	0.607	
KG /DAY (PPUT)	GUIDELINE	1.66	1.48	1.49	1.82	1.55	1.71	1.69	1.92	1.73	1.64	1.54	1.63	1.66	0
RESIDUE PARTIC.	CALC	29.5	35.1	24.7	37.6	34.9	38.8	24.7	9.33	12	22.9	27.7	12.9	25.8	
KG /DAY (RSP)	GUIDELINE	25.1	24.4	22.8	26.5	24.3	23.1	26.0	28.6	27.4	25.7	24.3	24.4	25.2	7
CARBON TOTAL	CALC	9.88	8.32	8.22	11.4	12	13.3	15.3	13.7	14	9.83	12.3	9.43	11.5	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 81% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Novacor Chemicals Canada Ltd. (previously reported as Petrosar) Corunna

IMISNO.: 0000480004

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Primary function to provide feedstock for Dupont, Polysar and NOVACOR. Also propane and other fuels.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble compounds from crude oil at parts per billion level.

EFFLUENT TREATMENT: Tertiary treatment diffused outfall.

DISCHARGE TYPE: Periodic through a submerged diffuser.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings. MISA GROSS data should not be compared to IMIS NET data reported prior to 1989.

01/08/91

000048-00-0(4) NOVACOR CHEMICALS CANADA LTD. CORUNNA REPORT DATE: 28 JAN 92

CONTROL POINT: 0200, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5862	5855	6379	6339	5416	6879	6079	7034	7299	7055	6241	5886	6360	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.54	7.6	7.72	7.7	7.7	7.79	7.79	7.68	7.8	7.8	7.69	7.61	7.7	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	CALC	0.027	0.029	0.035	0.034	0.024	0.025	0.03	0.029	0.036	0.02	0.029	0.04	0.0298	
KG /DAY (PHNOL)	GUIDELINE	0.117	0.117	0.128	0.127	0.108	0.138	0.128	0.141	0.147	0.142	0.125	0.121	0.128	0
NH3-N TOTAL	ACTUAL	0	0	0	0	5.40	0	0	6.99	0	7.04	6.27	5.77	2.62	
KG /DAY (NNHTFR)	GUIDELINE	58.6	58.6	63.8	63.4	54.2	68.8	60.8	70.3	73	70.6	62.4	58.9	63.6	0
RESIDUE PARTIC.	ACTUAL	87.8	116	105	79.7	91.8	110	112	105	102	84.4	56.4	51.9	91.8	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	11.7	11.6	12.3	6.13	10.8	6.86	12.4	6.99	7.31	7.04	6.27	5.77	8.77	
KG /DAY (SOLEXT)	GUIDELINE	87.9	87.8	95.7	95.1	81.2	103	91.2	106	109	106	93.6	88.3	95.4	0
CARBON TOTAL	ACTUAL	146	116	154	135	151	151	143	154	197	169	138	121	148	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ogilvie Mills Ltd. Thunder Bay

IMISNO.: 0000880005

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 105

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Starch and gluten are separated from grain flour.

EFFLUENT CHARACTERISTICS: Contains suspended solids (wheat husk) and starches /glutens.

EFFLUENT TREATMENT: Secondary biological anaerobic /aerobic.

DISCHARGE TYPE: Continuous surface.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Issued Dec 31, 1982. Control Order limits BOD5 to 900 kg/day, averaged over 30 days.

CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A limits BOD5 to 900 kg/day, averaged over 30 working days, issued on Aug 30, 1985.

MOE OR FEDERAL GUIDELINES: MOE guideline for suspended solids (RSP)

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (5), Suspended Solids (RSP) (12): Suspended solids exceedances are due to a physical constraint of the plant.

REMEDIAL ACTIONS: Hydraulic flow has been reduced by 25%. The company is continuing to negotiate with the municipality to direct their effluent to Thunder Bay's Water Pollution Control Plant for additional treatment.

COMMENTS: One trout bioassay conducted in 1990, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 3.5 %

03/08/91

000088-00-0(5) OGILVIE MILLS LTD. THUNDER BAY REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	953	981	1051	1042	1015	998	949	885	877	826	889	859	944	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1100	810	800	940	690	940	1000	1000	700	500	570	710	810	
KG /DAY (BOD5)	REQUIREMENT	900	900	900	900	900	900	900	900	900	900	900	900	900	5
RESIDUE PARTIC.	ACTUAL	2570	2350	2250	2200	1670	1460	1680	920	1090	1280	1510	1800	1732	
KG /DAY (RSP)	GUIDELINE	14.3	14.7	15.8	15.6	15.2	15	14.2	13.3	13.2	12.4	13.3	12.9	14.2	12

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 29% IN 1990.

THIS COMPANY IS NOT MONITORED UNDER THE MISA MONITORING PROGRAM

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Omstead Foods Ltd. Wheatley

IMISNO.: 0001050004

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 102, 103, 1032

RECEIVING WATERBODY: DIRECT: Muddy Creek
INDIRECT: 1.0 km Lake Erie

DESCRIPTION OF ACTIVITY: Fish is processed and vegetables are processed and frozen.

EFFLUENT CHARACTERISTICS: Contains fish and vegetable processing waste (BOD, suspended solids).

EFFLUENT TREATMENT: Extended aeration system.

DISCHARGE TYPE: Continuous, when plant is operating, through an open outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (4), NH3-N (2), Phosphorous (3), Suspended Solids (RSP) (7)

REMEDIAL ACTIONS: Poor effluent quality occurs primarily during the winter months, but overall quality is improving. On May 9, 1991 a Certificate of Approval was issued for upgrading the company's wastewater treatment plant. Construction should be completed by the Spring of 1993.

COMMENTS: Compliance is against total plant discharge.

01/08/91

000105-00-0(4) OMSTEAD FOODS LIMITED WHEATLEY REPORT DATE: 24 JAN 92

S U M M A R Y FOR EMIS. TYPE: 13 CLARIFIER EFFLUENT DISCHARGED INTO: 02/003/2280 MUDDY CR.

INCLUDES CONTROL POINTS: 0100 0200 - 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2005	2494	4780	5467	3757	6451	6042	8499	8367	7497	6032	6421	5651	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.8	6.5	6.5	6.6	6.8	6.6	6.9	7.05	7.05	7.25	7.4	7.5	6.91	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	78.3	56.1	66.4	43.2	190.1	88.2	29	39	24.2	35	106.8	90.4	70.6	
KG /DAY (BOD5)	GUIDELINE	30.1	37.4	71.7	82	56.4	96.8	90.6	127	126	112	90.5	96.3	84.8	4
NH3-N TOTAL	ACTUAL	14.6	2.7	9.2	65.9	67.2	2.8	1.5	1.6	3.6	1.6	0.7	2	14.5	
KG /DAY (NNHTUR)	GUIDELINE	20.1	24.9	47.8	54.7	37.6	64.5	60.4	85	83.7	75	60.3	64.2	56.5	2
PHOSPHOR UNF.TOT.	ACTUAL	3.3	2.1	6.8	2.4	5.8	3.6	1.5	5.6	2.3	2.7	2.4	1.4	3.33	
KG /DAY (PPUT)	GUIDELINE	2.01	2.49	4.78	5.47	3.76	6.45	6.04	8.5	8.37	7.5	6.03	6.42	5.65	3
RESIDUE PARTIC.	ACTUAL	67.6	64.9	62.7	32.3	189	97.8	43.6	48.9	27.8	282.7	135	167.9	102	
KG /DAY (RSP)	GUIDELINE	30.1	37.4	71.7	82	56.4	96.8	90.6	127	126	112	90.5	96.3	84.8	7

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1990.

000105-00-0(4) OMSTEAD FOODS LIMITED — WHEATLEY — REPORT DATE: 24 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						3060	3927	5481	5439	4873	3921	4868	4510	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL						6.4	7	7.1	7.1	7.3	7.5	7.6	7.14	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL						75	18.7	24.5	13.1	23.1	72.6	68.6	42.2	
KG /DAY (BOD5)	GUIDELINE														
NH3-N TOTAL	ACTUAL						1.5	0.6	1	2.1	0.9	0.4	1.4	1.13	
KG /DAY (NNHTUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL						2	1.2	3.7	1.5	1.7	1.5	1	1.8	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL						85.3	30.3	31.1	15.8	270.9	101	125.4	94.3	
KG /DAY (RSP)	GUIDELINE														

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000105-00-0(4) OMSTEAD FOODS LIMITED — WHEATLEY — REPORT DATE: 24 JAN 92

CONTROL POINT: 0200, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2005	2494	4780	5467	3757	3391	2115	3018	2928	2624	2111	1553	3020	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.8	6.5	6.5	6.6	6.8	6.8	6.8	7	7	7.2	7.3	7.4	6.89	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	78.3	56.1	66.4	43.2	190.1	13.2	10.3	14.5	11.1	11.9	34.2	21.8	45.9	
KG /DAY (BOD5)	GUIDELINE														
NH3-N TOTAL	ACTUAL	14.6	2.7	9.2	65.9	67.2	1.3	0.9	0.6	1.5	0.7	0.3	0.6	13.8	
KG /DAY (NNHTUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	3.3	2.1	6.8	2.4	5.8	1.6	0.3	1.9	0.8	1	0.9	0.4	2.28	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	67.6	64.9	62.7	32.3	189	12.5	13.3	17.8	12	11.8	34	42.5	46.7	
KG /DAY (RSP)	GUIDELINE														

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WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ontario Hydro
Atikokan TGS, Atikokan

IMISNO.: 0001842301

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Snow Lake
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Elevated water temperature.

EFFLUENT TREATMENT: Neutralization, Clarification, Filtration. Sewage to primary lagoons.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes. Temperature rise limits are 11.2 °C from May to October and 16.6 °C from November to April.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for two trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the CC-Outfall effluent to have been not acutely lethal to test fish.

03/21/91

000184-23-0(1) ONTARIO HYDRO - ATIKOKAN TGS — ATITKOKAN — REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, COOLING WATER DISCHARGE — 1990 DATA

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW (M3/DAY)	ACTUAL	570323	632143	576634	576634	576634	576630	423710	527300	556240	576630	576630	428540	549837	
	GUIDELINE														
TEMP. EFFLUENT DEG.C (FWTEMP)	ACTUAL	12	11.0	11.3	5	18.0	27.44	25.25	36.85	33.46	23.38	6.60	9.7	18.3	
	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP. RISE DEG.C (FWTINC)	ACTUAL	11	10.5	10.3	1.75	12.75	12.47	8.28	16.85	15.46	11.40	9.91	7.6	10.7	
	GUIDELINE	16.6	16.6	16.6	16.6	11.2	11.2	11.2	11.2	11.2	11.2	16.6	16.6	13.9	0
PH (PH)	ACTUAL	7.56	7.4				7.70	7.80	7.94	7.72	7.75	7.69	7.91	7.72	
	GUIDELINE														0
RESIDUE PARTIC. MG/L RSP	ACTUAL	1.0	0.7				1.0	3.3	3.3	3.3	3.3	4.0	1.1	2.3	
	GUIDELINE	15	15				15	15	15	15	15	15	15	15	0
RESIDUE FILTERED MG/L RSF	ACTUAL	74.6	79.0											76.8	
	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 42, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1990.

CERTIFICATE OF APPROVAL STIPULATES A MIXING ZONE. DATA REPRESENTS END OF PIPE SAMPLE. TEMPERATURE RISE WAS NOT EXCEEDED AT END OF MIXING ZONE.
FOR COMPLIANCE SEE WASTE WATER DISCHARGE SUMMARY PAGE

000184-23-0(1) ONTARIO HYDRO - ATIKOKAN TGS
CONTROL POINT: 0100, COOLING WATER DISCHARGE
FLOW/LOADING PARAMETERS

ATITKOKAN

1990 MISA DATA

REPORT DATE: 10 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						576634	423706	527302	556243	576634	576634	428542	523671	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL						7.7	7.8		7.83	7.75		7.8	7.78	
(PH)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC						57.7	42.4		92.3			84.2	69.2	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC						577	1400		1900	1900		1030	1361	
KG /DAY (RSP)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL						19.5	18.8	20.8	23.5	16.3	8.51	11.6	17	
DEG.C (TPEFME)	GUIDELINE														
TEMP. RISE	ACTUAL						5.35	0.436	2.16	7.36	6.58	4.65	9.82	5.19	
DEG.C (TPRIME)	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

CERTIFICATE OF APPROVAL STIPULATES A MIXING ZONE. DATA REPRESENTS END OF PIPE SAMPLE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Bruce NPGS, Sewage Treatment Plant, Tiverton

IMISNO.: 0001840107

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4999

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Plant treats sanitary wastes from the generating station complex. Also treats laundry waste and oily wastes.

EFFLUENT CHARACTERISTICS: Contains phosphorus, BOD and suspended solids

EFFLUENT TREATMENT: Secondary sewage treatment with phosphorus removal.

DISCHARGE TYPE: Continuous to Douglas Point outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for six trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the Sewage Treatment Plant effluent to have been not acutely lethal to test fish. However, an audit sample tested by the MOE was determined acutely-lethal. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 14.1 %.

01/08/90

000184-01-0(7) ONTARIO HYDRO - BRUCE NGS: NDPS TIVERTON REPORT DATE: 19 DEC 91
CONTROL POINT: 0100, STP DISCHARGE 1990 DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3/DAY (FTFLOW)	ACTUAL	1646	1241	1289	1142	886								1241	
	GUIDELINE														
PH (PH)	ACTUAL	7.2	7.1	7.05	7.1	7.1								7.11	
	GUIDELINE														0
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	2.47	2.36	2.64	2.97	3.54	4.44	3.93		8.78		21.1	10.5	6.27	
	GUIDELINE	25	19	19	17	13	18	20		27		27	25	21	0
KJELDAHL KG /DAY (NNKUR)	ACTUAL	2.45	1.8	3.48	3.31	4.16								3.04	
	GUIDELINE														
PHOSPHORUS KG/DAY (PPUT)	ACTUAL	0.412	0.248	0.258	0.343	0.089								0.27	
	GUIDELINE	1.6	1.2	1.3	1.1	0.9								1.22	0
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	10.7	7.9	7.8	7.42	2.21								7.21	
	GUIDELINE	25	19	19	17	13								18.8	0
RESIDUE FILTERED KG /DAY (RSF)	ACTUAL	479	298	336	283	N/A								279	
	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 25, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

DATA SUMMARIZED FROM MONTHLY ENVIRONMENTAL QUALITY COMPLIANCE REPORTS SUBMITTED TO W.R.B.

000184-01-0(7) ONTARIO HYDRO - BRUCE NGS: NDPS TIVERTON REPORT DATE: 28 JAN 92
CONTROL POINT: 0100, STP DISCHARGE 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY M3 /DAY (FTFLAV)	ACTUAL						1568	1310	1447	1533	1891	1831	1672	1607	
	GUIDELINE														
PH DAILY (PHAVG)	ACTUAL						6.95	6.81	6.9	6.76	6.64	6.5	6.51	6.72	
	GUIDELINE														0
K'DAHL N TOTAL KG /DAY (NNTKUR)	CALC						3.33	1.74	2.56	5.14	1.6	7.84	1.08	3.33	
	GUIDELINE														
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC						0.499	0.329	0.405	0.587	0.638	0.72	0.525	0.529	
	GUIDELINE						1.57	1.31	1.45	1.53	1.89	1.83	1.67	1.61	0
RESIDUE PARTIC. KG /DAY (RSP)	CALC						4.91	15.3	5.16	8.22	11.7	10.8	11.1	9.6	
	GUIDELINE						23.5	19.7	21.7	23	28.4	27.5	25.1	24.1	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

FLOW LOADING VALUES REPORTED IN 1988 AND 1989 REPRESENT TOTAL MONTHLY LOADINGS, NOT DAILY AVERAGE LOADINGS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Bruce NPGS, Stations A & B, Tiverton

IMIS NO.: 0001942507

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4999

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power Generation.

EFFLUENT CHARACTERISTICS: Elevated water temperature.

EFFLUENT TREATMENT: Neutralization, RLWMS Tanks, Oily Water Separators.

DISCHARGE TYPE: Continuous (once-through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES:

Station A: Temperature Rise guideline is 11.1 °C from middle of month of April to the middle of the month of December. The rest of the year the guideline is 13.0 °C.

Station B: Temperature Rise guideline is 11.1 °C from January to December.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the CCW-Outfall to have been not acutely lethal to test fish.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the CCW-Outfall effluent to have been not acutely lethal to test fish.

01/08/91

000184-42-0(8) ONTARIO HYDRO - BRUCE NGS: STATION A TIVERTON REPORT DATE: 28 JAN 92
CONTROL POINT: 1000, COOLING WATER DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6134400	2833920	4838400	3084480	8285760	10000000	10000000	10000000	10000000	10000000	7000000	8000000	7514747	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL	8.4	9.5	9.2	7.7	13.2	17.2	21.5	25.7	24.7	22.5	17.7	12.4	15.8	
DEG.C (TPEFME)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP. RISE	ACTUAL	8	8.5	7.9	4.4	6.3	5.77	7.67	9.14	9.17	9.9	8.9	7.26	7.74	
DEG.C (TPRIME)	GUIDELINE	13	13	13	S/C	11.1	11.1	11.1	11.1	11.1	11.1	11.1	S/C		S/C

NOTE: S/C - SEE COMMENTS, # - INDICATES MISA DATA

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000184-43-0(7) ONTARIO HYDRO - BRUCE NGS: STATION B TIVERTON REPORT DATE: 28 JAN 92
CONTROL POINT: 1400, COOLING WATER DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	15318720	12894330				10000000	10000000	10000000	10000000	10000000	10000000	20000000	12023672	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL	11.6	11.2	10.7	14.5	16.5	20.3	20.9	23.4	15.3	19.8	17.7	13.7	16.3	
DEG.C (TPEFME)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP. RISE	ACTUAL	9.6					9.58	8.67	8.03	8.84	8.61	9.62	9.7	9.08	
DEG.C (TPRIME)	GUIDELINE	11.1					11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

NOTE: # - INDICATES MISA DATA

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

PRIOR TO MISA MONITORING, DATA SUMMARIZED FROM MONTHLY ENVIRONMENTAL QUALITY COMPLIANCE REPORTS SUBMITTED TO W.R.B.

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Bruce NPGS, Heavy Water Plant, Tiverton

IMIS NO.: 0001840107

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Heavy water is produced for use in nuclear reactors.

EFFLUENT CHARACTERISTICS: Elevated water temperature and dissolved hydrogen sulphide.

EFFLUENT TREATMENT: Aeration/oxidization lagoon, sedimentation, steam stripping

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for a trout bioassay submitted to MOE under the MISA monitoring regulation in 1990, indicated the CCW-Outfall to had been not acutely lethal to test fish.

Six of seven samples collected from the Process effluent was determined to have been not acutely lethal to test fish. The remaining sample had a measured 96 hour LC50 of > 100 % effluent.
An audit test conducted by MOE on a sample from this site was determined as non-lethal.

01/08/91

000184-44-0(6) ONTARIO HYDRO - BRUCE NGS: HEAVY WATER PLANT TIVERTON REPORT DATE: 27 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW (M3/DAY)	ACTUAL	1726358	1719360	1460028	1708368	1675881								1657999	
	GUIDELINE														
WATER TEMP DEG. C (FWTEMP)	ACTUAL	9.7	8.57	7.06	11	10.5								9.37	
	GUIDELINE	32.2	32.2	32.2	32.2	32.2								32.2	0
TEMP RISE DEG.C (FWTINC)	ACTUAL	6.43	6.98	4.99	6.85	3.69								5.79	
	GUIDELINE	11.1	11.1	11.1	11.1	11.1								11.1	0
SULPHIDES KG /DAY (H2S)	ACTUAL	1.81	5.98	5.81	4.89	4.27								4.55	
	GUIDELINE	215	215	215	215	215								215	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 15, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

DATA SUMMARIZED FROM MONTHLY ENVIRONMENTAL QUALITY COMPLIANCE REPORTS SUBMITTED TO W.R.B.

000184-44-0(6) ONTARIO HYDRO - BRUCE NGS: HEAVY WATER PLANT TIVERTON REPORT DATE: 28 JAN 92
S U M M A R Y INCLUDES CONTROL POINTS 0200 0500
1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL						1072567	2081855	2061513	2053137	2074626	2078100	2087855	1929950	
	GUIDELINE														
TEMP. EFFLUENT DEG.C (TPEFME)	ACTUAL						17	19.4	21.7	20.4	19.9	16.8	13.8	18.4	
	GUIDELINE						32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP. RISE DEG.C (TPRIME)	ACTUAL						5.71	6.51	6.09	5.01	6.79	7.55	8.3	6.57	
	GUIDELINE						11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0
SULPHIDE UNF.REAC KG /DAY (SSIDUR)	CALC						4.12	0.491	0.194	0.522	1.05			1.28	
	GUIDELINE						215	215	215	215	215			215	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 19, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

COMBINED EFFLUENT FROM CONTROL POINTS 0200 AND 0500 (MISA), PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

000184-44-0(6) ONTARIO HYDRO - BRUCE NGS: HEAVY WATER PLANT TIVERTON REPORT DATE: 28 JAN 92
CONTROL POINT: 0200, COOLING WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						1000000	2000000	2000000	2000000	2000000	2000000	2000000	1857143	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL						17	19.4	21.7	20.4	19.9	16.8	13.8	18.4	
DEG.C (TPEFME)	GUIDELINE														
TEMP. RISE	ACTUAL						5.71	6.51	6.09	5.01	6.79	7.55	8.3	6.57	
DEG.C (TPRIME)	GUIDELINE														

****

000184-44-0(6) ONTARIO HYDRO - BRUCE NGS: HEAVY WATER PLANT TIVERTON REPORT DATE: 28 JAN 92
CONTROL POINT: 0500, PROCESS EFFLUENT 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						72567	81855	61513	53137	74626	78100	87855	72808	
M3 /DAY (FTFLOW)	GUIDELINE														
SULPHIDE UNF.REAC	CALC						4.12	0.491	0.194	0.522	1.05			1.28	
KG /DAY (SSIDUR)	GUIDELINE														

****

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

COMBINED EFFLUENT FROM CONTROL POINTS 0200 AND 0500 (MISA), PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Lakeview TGS, Mississauga

IMIS NO.: 0001843101

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Electrical Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station

EFFLUENT CHARACTERISTICS: Elevated water temperature.

EFFLUENT TREATMENT: Settling lagoon, filtration, neutralization, oily water separators, recycling.

DISCHARGE TYPE: Continuous (once-through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This plant is subject to MISA, Electrical Power Generating sector.

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CCW-Outfall effluent was not acutely lethal to test fish.

10/17/91

000184-31-0(1) ONTARIO HYDRO - LAKEVIEW TGS — PORT CREDIT — REPORT DATE: 07 JAN 92

CONTROL POINT: 0100, COOLING WATER DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	5322581	4300000	3074194	3696667	3690323	2585000	4083226	3747419	3019667	3832903	4680333	4964194	3916375	
	GUIDELINE														
TEMP. EFFLUENT DEG.C (TPEFME)	ACTUAL	12	11.8	12.3	14	12	11.3	14.6	20.1	18.1	10.5	9.56	7.23	12.8	
	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP. RISE DEG.C (TPRIME)	ACTUAL	10	9.75	10.3	9	4.4	3.32	1.35	2.24	3.68	1.46	3.49	3.73	5.23	
	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

NOTE: # - INDICATES MISA DATA

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24 , FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

PRIOR TO MISA MONITORING, DATA SUMMARIZED FROM MONTHLY ENVIRONMENTAL QUALITY COMPLIANCE REPORTS SUBMITTED TO W.R.B.

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ontario Hydro, Lambton TGS, Courtright

IMIS NO.: 0001841204

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Elevated water temperature and suspended solids.

EFFLUENT TREATMENT: Settling lagoon, neutralization, filtration.

DISCHARGE TYPE: Continuous (once through condenser cooling water). Continuous (ash settling lagoon/filtration of effluent).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CCW-Outfall effluent was not acutely lethal to test fish.

01/08/91

000184-12-0(4) ONTARIO HYDRO - LAMBTON TGS COURTRIGHT REPORT DATE: 24 JAN 92
CONTROL POINT: 0200, COOLING WATER DISCHARGE 1990 DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3200000	3200000	2100000	2500000	1500000								2500000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	17.8	16.5	16.9	17.6	21.9								18.1	
DEG.C (FWTEMP)	GUIDELINE	32.5	32.5	32.5	32.5	32.5								32.5	0
TEMP RISE	ACTUAL	16.7	16.3	16.6	11.1	11.9								14.5	
DEG.C (FWTINC)	GUIDELINE	16.7	16.7	16.7	16.7	16.7								16.7	0
RESIDUE PARTIC.	ACTUAL	7680	10880	9240	8500	2700								7800	
KG /DAY (RSP)	GUIDELINE														

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000184-12-0(4) ONTARIO HYDRO - LAMBTON TGS COURTRIGHT REPORT DATE: 06 MAR 92
CONTROL POINT: 0200, COOLING WATER DISCHARGE 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						838000	2000000	3000000	3000000	3000000	3000000	3000000	2548286	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	CALC						670	12524	14581	26648	8548	13576	10056	12372	
KG /DAY (RSP)	GUIDELINE						12570	30300	37710	37710	45000	37710	50280	35897	0
TEMP. EFFLUENT	ACTUAL						18.1	22.9	25.1	23.9	17.4	16.1	10.9	19.2	
DEG.C (TPEFME)	GUIDELINE						35	35	35	35	32.5	32.5	32.5	33.9	0
TEMP. RISE	ACTUAL						4.09	4.21	4.28	4.83	3.68	7.39	6.57	5.01	
DEG.C (TPRIME)	GUIDELINE						16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Lennox TGS, South Fredericksburg (Bath)

IMISNO.: 0001843309

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Electrical Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Oil fired thermal generating station.

EFFLUENT CHARACTERISTICS: Elevated water temperature and oil.

EFFLUENT TREATMENT: Dissolved air flotation, oily water separation, API Type separators on yard drainage, neutralization.

DISCHARGE TYPE: Continuous (once through condenser cooling water) and storm water drainage.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: BOD5 and RSP 15 mg/L, from Objectives for Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: MISA data is being reviewed to determine need for further controls on discharge.

The data for one of two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CW-CCW Outfall effluent was not acutely lethal to test fish. The remaining sample, when tested, resulted in a 96 hour LC50 > 100 % effluent.

The data for six of seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the PE-Oily Water TP Discharge effluent was not acutely lethal to test fish. The remaining sample, when tested, resulted in a 96 hour LC50 > 100 % effluent. An audit sample tested by the MOE was also determined non-lethal.

01/08/92

000184-33-0(9) ONTARIO HYDRO - LENNOX TGS — BATH — REPORT DATE: 08 OCT 91
CONTROL POINT: 0200, COOLING WATER DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	400000	2500000	2200000	200000	3000000	3172000	2052000	2324000	2499000	1942000	1894000	2004000	2015583	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. RISE	ACTUAL	0.3	0.3	0.9	1.4	0.3	2.61	1.63	2.48	1.9	0.991	0.78	0.78	1.2	
DEG.C (TPRIME)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

NOTE: # - INDICATES MISA DATA

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000184-33-0(9) ONTARIO HYDRO - LENNOX TGS — BATH — REPORT DATE: 10 DEC 91
CONTROL POINT: 0300, OIL WASTE DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	860	1093	1393	1085	1210	1180	590	670	467	1005	840	1830	1019	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.1	8.2	8.2	8.2	8.1	8	8.5	8.7	8.8	8.8	8.6	8.36	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	0.4	0.3	1.7	15.4	2	1	1	1	1.5	1.6	3	5.5	2.87	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	1	1	2	1	2	2	1	6	0.4	1	1	2	1.7	
KG /DAY (SOLEXT)	GUIDELINE	12.9	16.4	20.9	16.3	18.2	17.7	8.85	10.1	7.01	15.1	12.6	27.5	15.3	0

NOTE: PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000184-33-0(9) ONTARIO HYDRO - LENNOX TGS — BATH — REPORT DATE: 08 OCT 91
CONTROL POINT: 0300, OIL WASTE DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						1261	643		509	1070	831	1829	1024	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL						8.43	8.39		8.34	8.31	8.29	8.25	8.34	
(PH)	GUIDELINE														
RESIDUE PARTIC.	CALC						6.82	4.67		1.8	3.27	2.08	4.43	3.85	
KG /DAY (RSP)	GUIDELINE														

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING FOR CONTROL POINTS 0200 0300 IN JUNE 1990

000184-33-0(9) ONTARIO HYDRO - LENNOX TGS — BATH — REPORT DATE: 10 DEC 91

CONTROL POINT: 0400, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6200	5800	5500	6500	5600	5700	5200	4600	3800	4400	5800	5900	5417	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.2	8.1	8	8.1	8.2	8.3	8.3	8.4	8.6	8.8	8.5	8.3	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	5	5	6	24	10	8	16	9	1.5	1.6	27	21	11.2	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	5	6	8	2	2	0.001	3	6	1	1	0.001	3	3.08	
KG /DAY (SOLEXT)	GUIDELINE	93	87	82.5	97.5	84	85.5	78	69	57	66	87	88.5	81.3	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000184-33-0(9) ONTARIO HYDRO - LENNOX TGS — BATH — REPORT DATE: 10 DEC 91

CONTROL POINT: 0500, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8800	8200	7500	9100	7700	7800	7200	5800	5100	5700	7700	7700	7358	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.2	8.6	8.3	8.3	8.3	8.5	8.6	8.6	8.5	8.8	8.8	8.47	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	16	6	7	20	10	13	9	6	7	6	1.1	32	11.1	
KG /DAY (RSP)	GUIDELINE	132	123	113	137	116	117	108	87	76.5	85.5	116	116	110	0
SOLVENT EXTRACT.	ACTUAL	2	9	18	3	2	4	7	2	2	0.001	1	2	4.33	
KG /DAY (SOLEXT)	GUIDELINE	132	123	113	137	116	117	108	87	76.5	85.5	116	116	110	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

EFFLUENT FROM CONTROL POINTS 0400 AND 0500 NOT REPORTED UNDER MISA MONITORING REGULATION.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Nanticoke TGS, Nanticoke

IMIS NO.: 0001840008

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, SO_4.

EFFLUENT TREATMENT: Primary and secondary ash settling cells, primary and secondary settling lagoons, neutralization.

DISCHARGE TYPE: Continuous ash lagoons effluent.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-106-70-006 and revised Nov. 27, 1985.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Water quality data applies to effluent from ash lagoon only. Wastewater from lagoon is mixed with condenser cooling water prior to discharge.

The data for five of seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Ash Lagoon effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 77.9 - 80.6 %. The other two samples, when tested, resulted in 96 hour LC50s > 100 % effluent.

01/14/92

000184-00-0(8) ONTARIO HYDRO - NANTICOKE TGS — NANTICOKE — REPORT DATE: 14 FEB 92
CONTROL POINT: 0100, ASH LAGOON DISCHARGE — 1990 DATA (NET DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	76323	75071	52710	49033	48258								60279	
M3 /DAY (FTFLOW)	GUIDELINE														
CHROMIUM UNF.TOT.	ACTUAL	0.763	0.751	0	0.49	0								0.401	
KG /DAY (CRUT)	REQUIREMENT	7.63	7.51	5.27	4.9	4.83								6.03	0
IRON UNF.TOT.	ACTUAL	0*	0*	0*	0*	0*									
KG /DAY (FEUT)	REQUIREMENT	38.2	37.5	26.4	24.5	24.1								30.1	0
PHOSPHOR UNF.TOT.	ACTUAL	1.221	0.976	0.264	0.245	0.676	0.446	0.207	0.228	0.947	0.779	0.425	0.709	0.594	
KG /DAY (PPUT)	REQUIREMENT	7.63	7.51	5.27	4.9	4.83	4.05	4.15	3.79	4.31	4.33	5.31	7.87	5.33	0
RESIDUE FILTERED	ACTUAL	32958	31703	25135	13167	16036	9002	10441	6413	10233	9103	14272	25835	17025	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0*	15	81.7	0*	54.7								30.3	
KG /DAY (RSP)	GUIDELINE	1145	1126	791	735	724								904	0
SULPHATE UNF.REAC	ACTUAL	12047	11522	9280	9911	9936	6895	6310	4961	6488	6526	8808	17006	9141	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: 0* - INDICATES INTAKE EXCEEDED DISCHARGE

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000184-00-0(8) ONTARIO HYDRO - NANTICOKE TGS — NANTICOKE — REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, ASH LAGOON DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL						49207	36534	37991	36027	26925	43260	54723	40667	
M3 /DAY (FTFLAV)	GUIDELINE														
CHROMIUM UNF.TOT.	CALC						0.75	0.704	1.33	1.28	1.05	1.99	2.74	1.41	
KG /DAY (CRUT)	GUIDELINE						4.92	3.65	3.8	3.6	2.69	4.33	5.47	4.07	0
IRON UNF.TOT.	CALC						3.54	0.604	1.41	0.641	0.674	1.53	2.12	1.5	
KG /DAY (FEUT)	GUIDELINE						24.6	18.3	19	18	13.5	21.6	27.4	20.3	0
RESIDUE PARTIC.	CALC						322	236	151	318	214	405	1300	421	
KG /DAY (RSP)	GUIDELINE														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 14, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Ontario Hydro, Nanticoke TGS, Nanticoke

IMIS NO.: 0001840008

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Lake water for cooling purpose has no contact with any process pipes, but ash lagoon effluent is discharged into once through condenser cooling water. A temperature increase does result.

EFFLUENT TREATMENT: Neutralization, oil water separation.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-106-70-006 and revised Nov. 27, 1985.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CCW-Outfall effluent was not acutely lethal to test fish.

01/14/92

000184-00-0(8) ONTARIO HYDRO - NANTICOKE TGS — NANTICOKE — REPORT DATE: 23 JAN 92

CONTROL POINT: 0200, COOLING WATER DISCHARGE — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	12300000	10980000	9293000	10800000	7610000	4858367	6020000	4949355	4789667	5013000	5527000	5933548	7339495	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL	7.6	9.4	8	9.5	15.4	17.9	21.6	24.4	22.9	17.6	16	12	15.2	
DEG.C (TPEFME)	GUIDELINE	35	35	35	35	35	35	35	35	35	35	35	35	35	0
TEMP. RISE	ACTUAL	6.3	7.5	5.6	4.5	5.5	5.89	3.82	4.19	3.62	3.99	6.37	6.37	5.3	
DEG.C (TPRIME)	GUIDELINE	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	0

NOTE: # - INDICATES MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Pickering NPGS, Stations A & B, Pickering

IMIS NO.: 0001840206(A)
0001840206(B)

MOE REGION: Central

DISTRICT: York-Durham

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 491

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power Generation.

EFFLUENT CHARACTERISTICS: Elevated water temperature.

EFFLUENT TREATMENT: Neutralization, RLWMS Tanks, Oily Water Separators.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE):
Station A: #4-103-69-716 July 27, 1971, Temperature Rise - 11 °C

Station B: #4-049-77-8610 June 11, 1981, Temperature Rise - 11 °C

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company is subject to MISA, Electrical Power Generating Sector.

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CCW-U 1 & 2 - a effluent to have been not acutely lethal to test fish.

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CCW-NGS-B effluent to have been not acutely lethal to test fish.

11/09/90

000184-02-0(6) ONTARIO HYDRO - PICKERING NGS: STATION A PICKERING REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8400000	9900000	7400000	7400000	5400000	3500000	4700000	3500000	4100000	4700000	5000000	5100000	6000000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	16	13.9	16.3	16.3	5.4	11.6	20.7	25.5	22.3	17.9	15.3	14.2	16.3	
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP RISE	ACTUAL	9.1	7.3	9.8	8.7	1.4	2.6	6.9	6.5	7.9	6.9	8.2	8.7	7	
DEG.C (FWTINC)	REQUIREMENT	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000184-02-0(6) ONTARIO HYDRO - PICKERING NGS: STATION A PICKERING REPORT DATE: 07 JAN 92

S U M M A R Y FOR CONTROL POINTS: 1900, 2000, 2100, COOLING WATER DISCHARGE

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						3626064	4817088	7278624	7278584	4817048	7225572	4817048	5694290	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL						12.7	20.7	26.9	21.8	18	16.4	14.2	18.7	
DEG.C (TPEFME)	GUIDELINE														
TEMP. RISE	ACTUAL						4.16	6.9	7.38	7.89	7.72	9.14	8.71	7.41	
DEG.C (TPRIME)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

COMBINED EFFLUENT FROM COMPANY: 0001840206, CONTROL POINTS: 1900 + 2000 + 2100; PREVIOUSLY REPORTED AS COMPANY: 0001840206, CONTROL POINT: 0100

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

000184-02-0(6) ONTARIO HYDRO - PICKERING NGS: STATION A PICKERING REPORT DATE: 07 JAN 92
CONTROL POINT: 1900, COOLING WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						0	0	0	0				0	
M3 /DAY (FTFLOW)	GUIDELINE														

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000184-02-0(6) ONTARIO HYDRO - PICKERING NGS: STATION A PICKERING REPORT DATE: 07 JAN 92
CONTROL POINT: 2000, COOLING WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						0	0	2461536	2461536	0	2408524	0	1047371	
M3 /DAY (FTFLOW)	GUIDELINE														

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000184-02-0(6) ONTARIO HYDRO - PICKERING NGS: STATION A PICKERING REPORT DATE: 07 JAN 92
CONTROL POINT: 2100, COOLING WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						3626064	4817088	4817088	4817048	4817048	4817048	4817048	4646919	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL						12.7	20.7	26.9	21.8	18	16.4	14.2	18.7	
DEG.C (TPEFME)	GUIDELINE														
TEMP. RISE	ACTUAL						4.16	6.9	7.38	7.89	7.72	9.14	8.71	7.41	
DEG.C (TPRIME)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

COMBINED EFFLUENT FROM COMPANY: 0001840206, CONTROL POINTS: 1900 + 2000 + 2100; PREVIOUSLY REPORTED AS COMPANY: 0001840206, CONTROL POINT: 0100

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN INIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

000184-19-0(7) ONTARIO HYDRO - THUNDER BAY TGS — THUNDER BAY — REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, COOLING WATER DISCHARGE — 1990 DATA
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW (M3/DAY)	ACTUAL	930650	1197500	971613	1263667	1131935	1010000	954190	754840	653330	640970	867330	1094840	955905	
	GUIDELINE														
PH (PH)	ACTUAL	7.1	7.2	7.48			7.35	7	7.65	7.43	8.02	7.65	7.68	7.5	
	GUIDELINE														0
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	6.8	9.67	4			9	6.2	52	11	5	4.4	4.8	11.3	
	GUIDELINE	21.4	20.7	29.5			36.9	39.3	52.9	30.8	39	33.4	28.4	33.2	0
RESIDUE FILTERED MG/L (RSF)	ACTUAL		161	142	142									148	
	GUIDELINE														
TEMP. EFFLUENT DEG.C (FWTEMP)	ACTUAL	8	5.33	8	8	8	9	8.96	26.1	25.4	20	12.8	7.28	12.2	
	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP. RISE DEG.C (FWTINC)	ACTUAL	7.3	8	8	8	9	7	6.98	9.29	9.12	9.28	7.28	6.99	7.4	
	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 44 , FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

RSP GUIDELINE REPRESENTS A NET VALUE OF AMBIENT PLUS 15 MG/L

000184-19-0(7) ONTARIO HYDRO - THUNDER BAY TGS — THUNDER BAY — REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, COOLING WATER DISCHARGE — 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL						1287333	838065	901226	793167	629677	1122533	933935	929419	
	GUIDELINE														
PH (PH)	ACTUAL						7.35	7	7.65	7.43	8.02	7.65	7.68	7.54	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC						11790	4030	68016	7194	3270	5755	19388	17063	
	GUIDELINE														
TEMP. EFFLUENT DEG.C (TPEFME)	ACTUAL						19.1	20.1	20.6	19.2	12.2	5.97	2.88	14.3	
	GUIDELINE														
TEMP. RISE DEG.C (TPRIME)	ACTUAL						2.97	2.48	6.17	6.15	6	3.66	2.69	4.3	
	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: ORENCO (Ontario Rendering) Dundas

IMIS NO.: 0041670001

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1010, 1050, 5210

RECEIVING WATERBODY: DIRECT: Spencer Creek to Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Animal waste processing to produce tallow and meat meal.

EFFLUENT CHARACTERISTICS: Animal fats, manure, blood (ammonia, suspended solids, phosphorus, BOD, solvent extractables).

EFFLUENT TREATMENT: Conventional sewage treatment plant with polishing lagoon.

DISCHARGE TYPE: Seasonal discharge: No discharge for months of May to October.

COMPANY LIMITS SET BY: MOE GUIDELINES:

EXCEEDANCES: Suspended Solids (RSP) (3): due to runoff/erosion from fields.

REMEDIAL ACTIONS: High suspended solids due to runoff/erosion from fields upstream of sampling point. Sampling locations changed in mid 1990 to reflect actual quality of effluent discharged from plant.

COMMENTS: Sampling locations and protocols are under review to ensure samples are representative of the effluent quality.

04/22/92

004167-00-0(1) ORENCO (ONTARIO RENDERING) DUNDAS REPORT DATE: 14 FEB 92
CONTROL POINT: 0100,

FLOW/LOADING PARAMETERS		1990 DATA JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1443	1309	1267	1901							1571	1571	1510	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	6.55	6.8	6.8							7.7	6.9	7.03	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	1.44	1.31	3.8	20.9							1.57	3.14	5	
KG /DAY (BOD5)	GUIDELINE	21.6	19.6	19	28.5							23.6	23.6	23	0
NH3-N TOTAL	ACTUAL	0.722	0.347	0.348	0.951							0.267	0.0786	0.5	
KG /DAY (NNHTFR)	GUIDELINE	14.4	13.1	12.7	19							15.7	15.7	15	0
PHOSPHOR UNF.TOT.	ACTUAL	0.26	0.393	0.317	0.57							0.361	0.314	0.4	
KG /DAY (PPUT)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	13.7	32.7	31	38							4.71	4.71	21	
KG /DAY (RSP)	GUIDELINE	21.6	19.6	19	28.5							23.6	23.6	23	3
SOLVENT EXTRACT.	ACTUAL	4.91	12.3	12.7	34.2								0	13	
KG /DAY (SOLEXT)	GUIDELINE	14.4	13.1	12.7	19								15.7	15	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 29, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Petro-Canada Products Inc. Mississauga

IMISNO.: 0000130104

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and inorganics at parts per billion range.

EFFLUENT TREATMENT: Activated sludge. Once through cooling water receives gravity separation before discharge. Process, ballast and essentially all storm water receive primary treatment, filtration on dual media and secondary treatment before discharge.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Federal Petroleum Effluent Regulation & Guideline Refineries.

EXCEEDANCES: Suspended Solids (RSP) (4), Phenols (3), Solvent Extractables (1)

REMEDIAL ACTIONS: Petro-Canada modified their sludge handling and disposal system in 1990 to remediate residual particulate levels.

COMMENTS: Exceedances of residual particulate were due to problems with digester sludge handling in STP. Phenol exceedances were a result of decreased bacteria activity in their treatment system during cold weather. Exceedance of solvent extractables was a result of a single event equipment failure. This company is subject to MISA, Petroleum Refining sector.

The data for eleven of twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Process effluent was not acutely lethal to test fish. The remaining sample, when tested, resulted in a 96 hour LC50s > 100 % effluent.

04/22/92

000184-02-1(4) ONTARIO HYDRO - PICKERING NGS: STATION B PICKERING REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9200000	9800000	10000000	9300000	8500000	8400000	10000000	9300000	7900000	10000000	11000000	10000000	9000000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	16.7	17.3	16.6	17.1	9.9	17.4	24.1	27.7	24.9	20.4	18.1	16.1	18.9	
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	0
TEMP RISE	ACTUAL	9.9	10.7	9.8	9.5	6.7	8.7	9.9	8.4	9.3	9.4	9.7	9.2	9.27	
DEG.C (FWTINC)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000184-02-1(4) ONTARIO HYDRO - PICKERING NGS: STATION B PICKERING REPORT DATE: 07 JAN 92
CONTROL POINT: 3200, COOLING WATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						9833184	9833184	9833184	9833184	10108800	10324800	1015200	8683077	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP. EFFLUENT	ACTUAL						18.2	24.3	27.9	25.2	20.4	18.2	16.2	21.5	
DEG.C (TPEFME)	GUIDELINE														
TEMP. RISE	ACTUAL						8.99	9.97	8.39	9.44	9.52	9.68	9.24	9.32	
DEG.C (TPRIME)	REQUIREMENT														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

THIS COMPANY BEGAN MISA MONITORING REGULATION REPORTING IN JUNE 1990.

EFFLUENT FROM COMPANY: 0001840206, CONTROL POINT: 3200; PREVIOUSLY REPORTED AS COMPANY: 0001840214, CONTROL POINT: 0100

TEMP. RISE (TPRIME) AND TEMP. EFFLUENT (TPEFME) PREVIOUSLY REPORTED IN IMIS AS TEMP. RISE (FWTINC) AND WATER TEMP. (FWTEMP), RESPECTIVELY. TPRIME IS A MONTHLY AVERAGE WHEREAS FWTINC IS THE MAXIMUM HOURLY TEMPERATURE RISE DURING THE MONTH.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Thunder Bay TGS, Thunder Bay

IMIS NO.: 0001841907

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired Thermal Generating Station.

EFFLUENT CHARACTERISTICS: Elevated water temperature.

EFFLUENT TREATMENT: Coagulant aid, sedimentation, neutralization, and filtration.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes. Temperature rise - 10 °C

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the CCW Outfall effluent to have been not acutely lethal to test fish.

01/11/91

000013-01-0(4) PETRO CANADA PRODUCTS INC. MISSISSAUGA REPORT DATE: 07 JAN 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13844	14151	15019	12391	12443	14364	14639	13362	10840	13732	13202	12915	13409	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.49	7.8	7.79	7.88	7.89	7.95	8.01	7.99	7.89	7.94	7.83	7.76	7.85	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	20.3	32.2	26.9	54.4	15.6	2.04	8.69	2.78	8.11	46.7	9.03	17.6	20.4	
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC.	ACTUAL	0.318	0.234	0.417	0.303	0.2	0.2	0.2	0.224	0.2	0.224	0.206	0.213	0.245	
KG /DAY (PHNOL)	GUIDELINE	0.275	0.283	0.303	0.248	0.245	0.287	0.293	0.267	0.217	0.275	0.264	0.258	0.268	3
RESIDUE PARTIC.	ACTUAL	629	375	303	159	82.7	63.9	106	103	149	194	111	295	214	
KG /DAY (RSP)	GUIDELINE	208	212	225	186	187	215	220	200	163	206	198	194	201	4
SOLVENT EXTRACT.	ACTUAL	161	139	94.3	60.6	24.8	20.2	31.7	37.9	24.5	32.9	26.9	38.6	57.7	
KG /DAY (SOLEXT)	GUIDELINE	138	142	150	124	124	144	146	134	108	137	132	129	134	1
SULPHIDE UNF. REAC	ACTUAL	1.98	2.08	1.39	0.496	0.556	0.469	0.439	0.37	0.351	0.462	0.513	0.694	0.817	
KG /DAY (SSIDUR)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 83.3 % 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Petro-Canada Products Inc. Oakville

IMIS NO.: 0000530006

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and inorganics in the parts per billion range

EFFLUENT TREATMENT: Activated sludge. Process water and some storm water receive both primary and secondary treatment before discharge.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE) # 4-0111-88-007.

Residue particulate (RSP)	15.0 mg/L
Solvent Extractable (SOLEXT)	10.0 mg/L
Phenol (PHNOL)	20.0 µg/L
Ammonia (non-ion) (NNH3FR)	10.0 mg/L

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: Suspended Solids (RSP) (11), Phenols (4)

REMEDIAL ACTIONS: A Storm Water Management Plan has been undertaken at this facility. Stormwater retention ponds have been constructed to effectively manage storm water. In addition, wastewater treatment capacity will be increased.

COMMENTS: Exceedances of residual particulate and phenols occur when storm events result in the volume of effluent exceeding wastewater treatment capacity. This company is subject to MISA, Petroleum Refining sector.

The data for ten trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Process effluent was not acutely lethal to test fish.

04/22/92

000053-00-0(6) PETRO CANADA PRODUCTS INC. OAKVILLE REPORT DATE: 09 APR 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5287	6146	5949	4682	5704	4733	4371	4234	3993	4469	3886	5315	4897	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	8.1	8.2	8.3	8.2	7.9	8	8	7.9	7.9	7.9	8	8.03	
(PH)	GUIDELINE														0
NH3 FIL.REAC.	ACTUAL	13.2	11.1	13.7	11.2	14.3	5.21	0.437	7.2	6.79	18.8	17.1	14.9	11.2	
KG/DAY (NNH3FR)	REQUIREMENT	52.9	61.5	59.5	46.8	57	47.3	43.7	42.3	39.9	44.7	38.9	53.1	49	0
PHENOLS UNF-REAC	ACTUAL	0.126	0.181	0.108	0.24	0.0821	0.243	0.0319	0.0686	0.0419	0.0572	0.0428	0.0574	0.107	
KG /DAY (PHNOL)	REQUIREMENT	0.106	0.123	0.119	0.0936	0.114	0.0947	0.0874	0.0847	0.0799	0.0894	0.0777	0.106	0.0979	4
RESIDUE PARTIC.	ACTUAL	173	146	169	77.3	168	62	101	119	83	83.1	66.1	171	118	
KG /DAY (RSP)	REQUIREMENT	79.3	92.2	89.2	70.2	85.6	71	65.6	63.5	59.9	67	58.3	79.7	73.5	11
SOLVENT EXTRACT.	ACTUAL	12.7	11.7	15.5	13.6	17.7	15.1	13.6	10.2	7.19	13.4	8.55	11.7	12.6	
KG /DAY (SOLEXT)	REQUIREMENT	52.9	61.5	59.5	46.8	57	47.3	43.7	42.3	39.9	44.7	38.9	53.1	49	0
SULPHIDE UNF.REAC	ACTUAL	1.27	0.615	0.654	0.609	1.14	0.521	0.481	0.593	0.439	0.492	0.311	0.372	0.625	
KG /DAY (SSIDUR)	GUIDELINE	52.9	61.5	59.5	46.8	57	47.3	43.7	42.3	39.9	44.7	38.9	53.1	49	0

NOTE: PH-LIMITS 6.00 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 79.2 % IN 1990.

000053-00-0(6) PETRO CANADA PRODUCTS INC. OAKVILLE REPORT DATE: 07 JAN 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5287	6145	5949	4682	5704	4733	4371	4234	3993	4469	3886	5315	4897	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.03	8.09	8.18	8.25	8.17	7.86	8.57	7.96	8.18	7.88	7.88	8.02	8.09	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.131	0.253	0.107	0.335	0.203	0.401	0.2	0.225	0.2	0.2	0.207	0.201	0.222	
KG /DAY (PHNOL)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	198	253	168	79.1	215	62.7	103	168	92.7	89.4	93.5	259	148	
KG /DAY (RSP)	REQUIREMENT														
SOLVENT EXTRACT.	ACTUAL	13.4	12.6	14.1	13.4	16.9	14.6	12.3	9.8	7.78	12.6	9.06	12.1	12.4	
KG /DAY (SOLEXT)	REQUIREMENT														
SULPHIDE UNF.REAC	ACTUAL	0.637	0.748	0.623	0.601	0.959	0.514	0.482	0.599	0.408	0.681	0.4	0.369	0.585	
KG /DAY (SSIDUR)	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Placer-Dome Inc.
& PLANT LOCATION: Campbell Red Lake Mine, Balmertown

IMIS NO.: 0043440007

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Lime precipitation of heavy metals and arsenic, primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-058-86-006, issued August 22, 1986, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and suspended solids.

EXCEEDANCES: Arsenic (11), Suspended Solids (RSP) (2)

REMEDIAL ACTIONS: Company installing pressure oxidation system which will reduce arsenic and metal concentrations in effluent.

COMMENTS: The effluent discharge point is shared with Dickenson Mines Ltd., thus the loadings and comments for the two are identical.

Four of nine trout bioassays conducted in 1990, indicated the Balmer Creek effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged 26.2 - 100 %. Four of the remaining samples were determined non-lethal and the other had a 96 hour LC50 of > 100 % effluent.

02/27/91

004344-00-0(7) PLACER-DOME INC. CAMPBELL RED LAKE MINE BALMERTOWN REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, 1990 DATA
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	7910	5890	11230	6280	0	56160	83850	80200	75600	43530	13970	6180	35527	
	GUIDELINE														
ARSENIC UNF.TOT. MG/L (ASUT)	ACTUAL	1.298	0.843	1.275	1.156		0.953	0.919	0.958	0.958	0.975	0.901	0.958	1.018	
	REQUIREMENT	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	11
CYANIDE AVAIL MG/L (CCNAUR)	ACTUAL	0.28	0.17	0.34	0.41		0.5	0.14	0.25	0.09	0.19	0.39	0.39	0.286	
	REQUIREMENT	2	2	2	2		2	2	2	2	2	2	2	2	0
COPPER UNF.TOT. MG/L (CUUT)	ACTUAL	0.52	0.455	0.578	0.585		1.042	0.582	0.4	0.352	0.358	0.427	0.505	0.528	
	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT. MG/L (NIUT)	ACTUAL	0.623	0.565	0.646	0.583		0.634	0.526	0.45	0.484	0.505	0.578	0.623	0.565	
	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0
LEAD UNF. TOT. MG/L (PBUT)	ACTUAL	0.019	0.029	0.03	0.029		0.027	0.029	0.03	0.03	0.03	0.032	0.03	0.029	
	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	6	7	6	11		10	4	4	6	17	14	16	9.18	
	REQUIREMENT	15	15	15	15		15	15	15	15	15	15	15	15	2
ZINC UNF.TOT. MG/L (ZNUT)	ACTUAL	0.113	0.134	0.163	0.126		0.192	0.112	0.068	0.074	0.11	0.108	0.123	0.120	
	REQUIREMENT	1	1	1	1		1	1	1	1	1	1	1	1	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 OUT OF 77, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1990.

COMPANY DID NOT DISCHARGE DURING THE MONTH OF MAY 1990

004344-00-0(7) PLACER-DOME INC. - CAMPBELL RED LAKE MINE — BALMERTON — REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		5795	11765	8455		75380	77960	74587	76325	44245	13504	6106	39412	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	CALC		8.68	17.5	15		77.7	70	69.4	74.6	42.3	12.7	5.97	39.4	
KG /DAY (ASUT)	REQUIREMENT														
CYANIDE AVAIL	CALC		1.35	3.97	3.71		32.1	6.96	2.57	4.09	6.34	4.45	0.959	6.65	
KG /DAY (CCNAUR)	REQUIREMENT														
COPPER UNF.TOT.	CALC		2.69	7.45	6.06		75.4	40.1	27.7	25.2	15.6	5.8	2.88	20.9	
KG /DAY (CUUT)	REQUIREMENT														
NICKEL UNF.TOT.	CALC		3.48	7.95	6.46		47.8	39.2	33	35	21.2	7.47	3.66	20.5	
KG /DAY (NIUT)	REQUIREMENT														
RESIDUE PARTIC.	CALC		54.2	69.8	73.1		639	404	377	400	378	132	70.1	260	
KG /DAY (RSP)	REQUIREMENT														
ZINC UNF.TOT.	CALC		0.573	1.57	1.38		15.3	9.34	6.52	6.73	4.27	1.57	0.762	4.81	
KG /DAY (ZNUT)	REQUIREMENT														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

COMPANY DID NOT DISCHARGE DURING THE MONTH OF MAY 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Placer-Dome Inc. Detour Lake Mine, Timmins

IMISNO.:0028940005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Sunday Lake
INDIRECT: Detour River

DESCRIPTION OF ACTIVITY: Gold mining and milling operation using carbon-in-pulp method.

EFFLUENT CHARACTERISTICS: Contains copper and cyanide, and lesser amounts of other heavy metals.

EFFLUENT TREATMENT: Natural degradation in tailings area with the decant liquor being treated by hydrogen peroxide prior to discharge to a polishing pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (June 7, 1990) The present Certificate of Approval states the maximum allowable concentrations for copper and cyanide are 1.0 mg/L and 2.0 mg/L respectively at the final discharge point. In 1987 a C. of A. was issued for treating the tailing decant with hydrogen peroxide.

EXCEEDANCES: Ammonia (4)

REMEDIAL ACTIONS: The company has experienced exceedances of copper during the spring run-off. Hydraulic loading also exceeded treatment plant capability. A Certificate of Approval was issued in 1989 for expansion of the hydrogen peroxide plant. Construction was completed in 1990. Copper levels have decreased and company is investigating methods for further reductions. Ammonia concentrations were high for part of the summer of 1991 and the company did not discharge during this period.

COMMENTS: The data for three of four trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final discharge effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 24.1, 75.6 and 59.2 % effluent. The remaining sample was non-lethal. An audit sample tested by MOE was also determined as acutely lethal. The 96 hour LC50 for the audit sample was 80.6 % effluent.

12/16/91

002894-00-0(5) PLACER DOME INC., DETOUR LAKE MINES TIMMINS REPORT DATE: 9 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL	0.004	0.003			0.003	0.008	0.006	0.001	0.003	0.003	0.003	0.002	0.004	
MG/L AS HCN	REQUIREMENT	1	1			1	1	1	1	1	1	1	1	1	0
COPPER UNF.TOT.	ACTUAL	0.402	0.406	0.23	0.344	0.121	0.367	0.396	0.331	0.243	0.294	0.295	0.188	0.301	
MG/L AS CU	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0.036	0.034		0.03	0.018	0.029	0.034	0.028	0.023	0.023	0.019	0.022	0.027	
MG/L AS NI	REQUIREMENT	1	1		1	1	1	1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL	6	5.5		8.35	8.62	16.25	14.5	12.6	11.8	7.95	5.74	3.61	9.17	
MG/L (NNH3FR)	REQUIREMENT	10	10		10	10	10	10	10	10	10	10	10	10	4
LEAD UNF.TOT.	ACTUAL	0.03	0.03			0.06	0.023	0.03	0.012	0.025	0.022	0.018	0.027	0.028	
MG/L AS PB	REQUIREMENT	2	2			2	2	2	2	2	2	2	2	2	0
PH	ACTUAL	7.24	7.08	7.12	7.23	7.81	7.39	7.83	7.73	7.71	7.44	7.29	7.318	7.43	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL	0.012	0.022			0.008	0.013	0.012	0.019	0.014	0.014	0.018	0.021	0.015	
MG/L AS ZN	REQUIREMENT	1	1			1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 76, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1990.

002894-00-0(5) PLACER DOME INC., DETOUR LAKE MINES — TIMMINS — REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE		5367	7161	21290	123557	34028	10611	47.7	238	86418	46453	14639	31801	
PH (PH)	ACTUAL GUIDELINE		7.15	6.97	7.32	7.66	7.69	7.95	7.58	7.65	7.49	7.39	7.17	7.46	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC REQUIREMENT		0.329	0.644	0.561	3.99	1.48	0.331	0.001	0.004	2.71	1.15	0.209	1.04	
COPPER UNF.TOT. KG /DAY (CUUT)	CALC REQUIREMENT		2.06	2.4	6.12	56.5	12.2	4.07	0.014	0.061	23.9	14.7	2.85	11.4	
NICKEL UNF.TOT. KG /DAY (NIUT)	CALC REQUIREMENT		0.181	0.197	0.456	2.72	0.783	0.261	0.001	0.005	2.62	1.16	0.25	0.785	
NH3-N TOTAL KG /DAY (NNHTFR)	CALC REQUIREMENT		32.2	39.6	137	990	539	173	0.683	2.86	940	377	76.3	300.69	
NH3-N FIL. REAC. KG /DAY (NNH3FR)	CALC REQUIREMENT		0.537	0.716	2.83	31.2	6.47	3.51	0.017	0.056	10.8	4.65	1.46	5.66	
LEAD UNF.TOT. KG /DAY (PBUT)	CALC REQUIREMENT		0.161	0.215	0.639	3.71	1.02	0.318	0.001	0.007	2.59	1.39	0.439	0.954	
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC REQUIREMENT		0.068	0.079	0.213	1.32	0.34	0.184	0.001	0.003	0.864	0.465	0.146	0.335	

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Placer-Dome Inc.
& PLANT LOCATION: Dome Mine, South Porcupine

IMISNO.:0001170000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 052, 0591

RECEIVING WATERBODY: DIRECT: Swamp
INDIRECT: South Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered using CIP process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, lead, nickel and zinc.

EFFLUENT TREATMENT: Natural degradation.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (August 1988) Effluent criteria have been placed on the Certificate of Approval.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The company has converted to the carbon-in-pulp milling process and instituted water recirculation within the mill to improve effluent quality prior to discharge. The tailings dam was also raised, thereby increasing retention time.

The data for one of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to had been acutely lethal to test fish. Statistically the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 82.8 %. Of the remaining samples, one was determined non-lethal and the other produced a 96 hour LC50 > 100 % effluent.

12/16/91

000117-00-0(0) PLACER DOME INC., DOME MINES — SOUTH PORCUPINE — REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, — 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE FREE	ACTUAL	0.03	0.04	0.05	0.25	0.137	0.049	0.019	0.026	0.038	0.021	0.027	0.018	0.059	
MG/L (CCNFUR)	GUIDELINE	2	2	2	2	2	2	2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL	0.3	0.34	0.37	0.44	0.39	0.21	0.2	0.17	0.5	0.13	0.15	0.14	0.278	
MG/L AS CU	GUIDELINE														
IRON UNF.TOT.	ACTUAL	0.21	0.24	0.24	0.3	0.41	0.29	0.11	0.16	0.17	0.26	0.38	0.26	0.253	
MG/L AS FE	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL	0.27	0.27	0.25	0.23	0.26	0.12	0.26	0.3	0.27	0.28	0.28	0.3	0.258	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
LEAD UNF.TOT.	ACTUAL	0.08	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03	0.03	< 0.03	< 0.03	0.03	0.03	0.034	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.57	7.43	7.16	7.16	7.47	7.6	7.94	7.62	7.39	7.5	7.73	7.7	7.52	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	4.4	4.88	< 5	< 5	< 5	10.23	11.04	5.95	< 5	5.99	5.79	< 5	6.11	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
SULPHATE FIL.REAC	ACTUAL	172.4	182.8	208	127.4	254.4	179.3	189.06	174.47	179.4	178	236	195	190	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.03	0.02	0.01	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	0.03	0.01	0.014	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000117-00-0(0) PLACER DOME INC., DOME MINES — SOUTH PORCUPINE — REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		10501	22603	53647	33522	15525	18175	25343	16749	20172	16879	17210	22757	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.36	7.16	7.18	7.47	7.56	7.94	7.62	7.39	7.5	7.69	7.69	7.5	
(PH)	GUIDELINE														
CYANIDE FREE	CALC		0.603	1.69	22.6	5.32	0.762	0.438	0.725	0.715	0.444	0.561	0.485	3.13	
KG /DAY (CCNFUR)	GUIDELINE														
COPPER UNF.TOT.	CALC		3.48	10.2	34	13.7	4.19	3.53	4.17	2.61	2.76	2.47	2.46	7.6	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	CALC		2.2	2.21	11.2	8.19	3.56	3.72	0.282	2.47	2.53	7.05		4.34	
KG /DAY (FEUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		2.78	6.08	16.5	8.9	3.48	4.69	8.22	4.67	5.72	4.76	5.05	6.44	
KG /DAY (NIUT)	GUIDELINE														
LEAD UNF.TOT.	CALC		0.368	0.678	1.61	1.01	0.466	0.545	0.76	0.502	0.651	0.506	0.516	0.692	
KG /DAY (PBUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		58.8	113	268	255	157	195	189	83.7	118	105	86	148	
KG /DAY (RSP)	GUIDELINE														
SULPHATE FIL.REAC	CALC		1914	1683			2722			2939				2315	
KG /DAY (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.223	0.556	0.536	0.335	0.195	0.182	0.253	0.167	0.202	0.5	0.228	0.307	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Placer-Dome Inc. Dona Lake Mine

IMIS NO.: 043440205

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Kawinogans River
INDIRECT: Attawapiskat river

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic.

EFFLUENT TREATMENT: Primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-123-86-886, issued June 22, 1988, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and lead.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to have been not acutely lethal to test fish.

02/27/91

004344-02-0(5) PLACER DOME INC., DONA LAKE MINE PICKLE LAKE REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL					21980	35710	16330			28730	17290		24008	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL					2.6	5	5			2.6	2.25		3.49	
UG/L (ASUT)	REQUIREMENT					500	500	500			500	500		500	0
CYANIDE AVAIL	ACTUAL					0.004	0.333	0.004			0.005	0.006		0.070	
MG/L AS HCN	REQUIREMENT					1.5	1.5	1.5			1.5	1.5		1.5	0
COPPER UNF.TOT.	ACTUAL					4	3.67	12			6.4	6		6.41	
UG/L (CUUT)	REQUIREMENT					1000	1000	1000			1000	1000		1000	0
NICKEL UNF.TOT.	ACTUAL					1.5	4.67	2.5			2.7	9.5		4.17	
UG/L (NIUT)	REQUIREMENT					1000	1000	1000			1000	1000		1000	0
LEAD UNF.TOT.	ACTUAL					2	9.67	24.3			4.4	4.25		8.91	
UG/L (PBUT)	REQUIREMENT					1000	1000	1000			1000	1000		1000	0
PH	ACTUAL					7.35	7.30	7.33			7.52	7.38		7.37	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL					4.5	4.67	12.8			11.0	10.5		8.68	
UG/L (ZNUT)	REQUIREMENT					1000	1000	1000			1000	1000		1000	0

NOTE: PH-LIMITS 5.50 - 9.00

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE WASTEWATER DISCHARGE SUMMARY PAGE.

COMPANY DID NOT DISCHARGE JANUARY TO APRIL, AUGUST, SEPTEMBER AND DECEMBER 1990

004344-02-0(5) PLACER DOME INC., DONA LAKE MINE — PICKLE LAKE — REPORT DATE: 10 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE					26167	36387	20811			26315	15833		25103	
PH (PH)	ACTUAL REQUIREMENT					7.41	7.36	7.33			7.55	7.54		7.44	
ARSENIC UNF.TOT. KG /DAY (ASUT)	CALC REQUIREMENT					0.197	0.16	0.0729			0.106			0.134	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC REQUIREMENT					0.0892	0.175	0.0832			0.224	0.151		0.144	
CYANIDE FREE KG /DAY (CCNFUR)	CALC GUIDELINE					0.0892	0.146	0.0832			0.157	0.0843		0.112	
COPPER UNF.TOT. KG /DAY (CUUT)	CALC REQUIREMENT					0.0345	0.257	0.0437			0.0447			0.0949	
NICKEL UNF.TOT. KG /DAY (NIUT)	CALC REQUIREMENT					0.0328	0.0963	0.0437			0.0425			0.0538	
LEAD UNF.TOT. KG /DAY (PBUT)	CALC REQUIREMENT					0.197	0.0963	0.175			0.0957			0.141	
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC REQUIREMENT					0.0656	0.193	0.0175			0.149			0.106	

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

COMPANY DID NOT DISCHARGE JANUARY TO APRIL, AUGUST, SEPTEMBER AND DECEMBER 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Polysar Rubber Corp. (previously reported as Nova Petrochemicals Inc.) Sarnia — IMISNO.: 0000030007

MOE REGION: Southwest — DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals — SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: Cole Drain, St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock from refineries in the Sarnia area are converted into several grades of synthetic rubber and petrochemicals such as styrene. The company also treats process effluent from Akzo Chemicals and Basf Canada Inc. The two styrene plants were separated and are now owned by Novacor Chemicals (Canada) Ltd. (Sarnia). Effluent from the Styrene plants are also continuing to be treated at the Polysar Rubber Corporation Biox-plant.

EFFLUENT CHARACTERISTICS: Contains a variety of organics including chlorinated compounds.

EFFLUENT TREATMENT: Secondary treatment (ie biotreatment, ozone treatment).

DISCHARGE TYPE: Continuous through five major outfalls.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring using "Gross" loadings and should not be compared to "Net" loadings data previously reported. The reported increase in loadings does not imply a decrease in effluent quality nor an actual increase in loadings to the river.

The data for eight of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined #200 effluent to have been not acutely lethal to test fish. However, the remaining sample was determined to had been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days of exposure was 3.2 %. An audit sample tested by the MOE was determined to had been not acutely lethal.

COMPANY NAME: Polysar Rubber Corp. ... continued
& PLANT LOCATION: Sarnia

IMISNO.:0000030007

The data for nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined #400 effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was determined as not acutely lethal.

The data for eight of nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined #500 effluent to have been not acutely lethal to test fish. The remaining sample, when tested, resulted in a 96 hour LC50 > 100 % effluent. An audit sample tested by the MOE was determined as not acutely lethal.

The data for nine trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Process effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was determined as not acutely lethal.

04/22/92

000003-00-0(7) POLYSAR RUBBER CORPORATION SARNIA REPORT DATE: 28 JAN 92

S U M M A R Y FOR EMIS. TYPE: 31 COMBINED EFFLUENT DISCHARGED INTO: ST. CLAIR RIVER

INCLUDES CONTROL POINTS: 0200 0400 0500 1800

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	373353	371310	382128	373923	370252	390339	376798	458368	363460	467643	377620	345707	387575	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.04	7.95	7.95	7.98	8.08	8.17	8.18	8.18	8.14	8.16	8.08	8.16	8.09	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	21.1	25.2	2.75	21.5	4.58	42.2	35.1	23	4.41	124	98.5	88.7	40.9	
KG /DAY (NNHTFR)	GUIDELINE	3701	128	127	3683	146	125	4088	110	86	4676	3569	3457	1991	0
PHENOLS UNF-REAC	ACTUAL	1.74	0.183	0.459	0.834	0.62	0.662	0.807	1.17	0.66	1.43	1.42	1.13	0.926	
KG /DAY (PHNOL)	GUIDELINE	7.49	7.35	7.67	7.36	7.59	7.47	8.17	9.32	7.15	9.35	7.14	6.91	7.75	0
RESIDUE PARTIC.	ACTUAL	1667	1960	1931	1876	1893	1721	1766	2086	1589	4100	2944	2138	2139	
KG /DAY (RSP)	GUIDELINE	5593	5610	5716	5614	5524	5864	5608	6898	5476	7014	5353	5186	5788	0
SOLVENT EXTRACT.	ACTUAL	775	633	655	470	452	439	386	456	356	705	566	522	535	
KG /DAY (SOLEXT)	GUIDELINE	4669	4670	5045	4709	4649	4819	6324	7224	4125	6855	5813	5598	5375	0
CARBON TOTAL	ACTUAL	3673	3573	3492	3856	2361	2914	3214	2903	1783	3123	3123	2983	3083	
KG /DAY (TOC)	GUIDELINE														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

EFFLUENT FROM CONTROL POINT 1800, PREVIOUSLY REPORTED AS 0600.

000003-00-0(7) POLYSAR RUBBER CORPORATION — SARNIA — REPORT DATE: 3 MAR 92
CONTROL POINT: 0200, — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	69170	68493	60758	64270	68956	75030	41046	75738	56103	61245	55396	55655	62655	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.02	8.1	8.1	8.16	8.26	8.28	8.29	8.27	8	8.18	8.23	8.17	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	4.22			8.82			1.53			15.3	13.9	14.9	9.78	
KG /DAY (NNHTFR)	GUIDELINE	692			588			611			612	554	557	602	0
PHENOLS UNF-REAC	ACTUAL	0.704	0.068	0.26	0.059	0.14	0.147	0.018	0.148	0.235	0.2	0.2	0.206	0.199	
KG /DAY (PHNOL)	GUIDELINE	1.41	1.35	1.30	1.18	1.40	1.47	1.22	1.48	1.57	1.22	1.11	1.11	1.32	0
RESIDUE PARTIC.	ACTUAL	290	333	244	364	308	324	169	341	245	503	456	382	330	
KG /DAY (RSP)	GUIDELINE	1036	1034	916	961	1042	1124	604	1138	877	919	831	835	943	0
SOLVENT EXTRACT.	ACTUAL	141	69	59.5	117	66	72.4	45.1	71.2	49.4	91.9	83.1	83.5	79.1	
KG /DAY (SOLEXT)	GUIDELINE	1042	1040	929	950	1031	1122	705	1113	770	919	789	835	937	0
CARBON TOTAL	ACTUAL	774	665	538	645	455	535	306	460	268	383	429	489	496	
KG /DAY (TOC)	GUIDELINE														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 54, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000003-00-0(7) POLYSAR RUBBER CORPORATION — SARNIA — REPORT DATE: 3 MAR 92
CONTROL POINT: 0400, — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	114939	116602	132994	117852	113572	120935	184532	197568	115376	189816	159477	152634	143025	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.12	8.04	8.06	8.11	8.14	8.31	8.29	8.32	8.28	8.22	8.18	8.23	8.19	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	2.8			2.96			5.11			47.5	39.9	38.3	22.8	
KG /DAY (NNHTFR)	GUIDELINE	1121			1182			2045			1898	1595	1526	1561	0
PHENOLS UNF-REAC	ACTUAL	0.112	0.034	0.077	0.118	0.037	0.212	0.409	0.208	0.178	0.475	0.399	0.383	0.22	
KG /DAY (PHNOL)	GUIDELINE	2.3	2.29	2.68	2.36	2.49	2.12	4.09	4.16	1.78	3.8	3.19	3.05	2.86	0
RESIDUE PARTIC.	ACTUAL	489	531	713	496	480	508	784	839	518	1332	1048	857	716	
KG /DAY (RSP)	GUIDELINE	1721	1792	1979	1771	1713	1815	2755	2996	1731	2847	2392	2290	2150	0
SOLVENT EXTRACT.	ACTUAL	269	127	132	115	126	131	174	190	107	285	239	230	177	
KG /DAY (SOLEXT)	GUIDELINE	1719	1721	1964	1787	1700	1756	2713	2966	1614	2847	2392	2290	2122	0
CARBON TOTAL	ACTUAL	1068	1138	1240	1186	699	879	1604	1185	513	1105	1166	1187	1081	
KG /DAY (TOC)	GUIDELINE														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 54, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000003-00-0(7) POLYSAR RUBBER CORPORATION — SARNIA — REPORT DATE: 3 MAR 92
CONTROL POINT: 0500, — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	175966	173260	175366	179669	173108	181752	138168	173749	183320	200492	146788	125163	168900	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.29	8.2	8.3	8.37	8.4	8.38	8.41	8.41	8.34	8.61	8.35	8.4	8.37	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	4.4			4.48			7.83			50.2	36.8	31.3	22.5	
KG /DAY (NNHTFR)	GUIDELINE	1758			1791			1304			2005	1261	1252	1562	0
PHENOLS UNF-REAC	ACTUAL	0.879	0.052	0.052	0.537	0.341	0.181	0.261	0.346	0.182	0.531	0.41	0.313	0.34	
KG /DAY (PHNOL)	GUIDELINE	3.52	3.45	3.44	3.58	3.41	3.63	2.61	3.46	3.63	4.01	2.52	2.5	3.31	0
RESIDUE PARTIC.	ACTUAL	739	933	761	813	725	767	638	752	767	2059	1145	652	896	
KG /DAY (RSP)	GUIDELINE	2640	2592	2630	2700	2550	2738	2057	2599	2740	3007	1891	1877	2502	0
SOLVENT EXTRACT.	ACTUAL	280	390	413	175	184	194	135	166	176	301	220	188	235	
KG /DAY (SOLEXT)	GUIDELINE	2642	2567	2582	2740	2621	2726	2102	2601	2753	3007	2202	1877	2535	0
CARBON TOTAL	ACTUAL	1663	1624	1594	1850	1082	1361	1161	1047	830	1313	1095	982	1300	
KG /DAY (TOC)	GUIDELINE														

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 54, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000003-00-0(7) POLYSAR RUBBER CORPORATION — SARNIA — REPORT DATE: 28 JAN 92
CONTROL POINT: 1800, — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL		12955	13010	12132	14616	12622	13052	11313	8661	16090	15959	12255		
M3 /DAY (FTFLAV)	GUIDELINE														
FLOW	ACTUAL	13278													
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.66	7.55	7.35	7.36	7.6	7.74	7.75	7.68	7.68	7.82	7.61	7.79	7.63	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	9.63	25.2	2.75	5.22	4.58	42.2	20.6	23	4.41	10.5	7.87	4.18	13.3	
KG /DAY (NNHTFR)	GUIDELINE	130	128	127	122	146	125	128	110	86	161	160	123	129	0
PHENOLS UNF-REAC	ACTUAL	0.05	0.029	0.07	0.12	0.102	0.122	0.119	0.465	0.065	0.223	0.409	0.225	0.167	
KG /DAY (PHNOL)	GUIDELINE	0.261	0.256	0.254	0.243	0.292	0.250	0.255	0.220	0.171	0.322	0.319	0.245	0.26	2
RESIDUE PARTIC.	ACTUAL	149	163	213	203	380	122	175	154	58.5	206	295	247	197	
KG /DAY (RSP)	GUIDELINE	196	192	191	182	219	187	192	165	128	241	239	184	193	5
SOLVENT EXTRACT.	ACTUAL	84.8	47	50.8	63	76.2	41.6	31.4	29.2	24	27.3	24	20.9	43.4	
KG /DAY (SOLEXT)	GUIDELINE	189	188	188	185	218	185	193	179	127	241	239	184	193	0
CARBON TOTAL	ACTUAL	168	146	120	175	125	139	143	211	172	322	433	325	207	
KG /DAY (TOC)	GUIDELINE														

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 88.3 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Quebec and Ontario Paper Company Ltd. Allanburg, Thorold

IMISNO.:0000930008

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12.4 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Newsprint is made from debarked logs by three pulping processes (thermal-mechanical and chemi-mechanical) and from deinked newspaper pulp.

EFFLUENT CHARACTERISTICS: Residual organics produces a foam in the Old Welland Canal.

EFFLUENT TREATMENT: An oxygen high-rate system treats deinking effluent. A clarifier removes solids from high-solids wastewaters (note- cooling waters were separated from process wastewaters). An activated sludge system is used to remove substances causing biological oxygen demand.

DISCHARGE TYPE: Continuous into a buried part of the Old Welland Canal.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (Feb 5, 1987) Requirement for suspended solids loadings is 6.8 tonnes/day and BOD5 is 18.14 tonnes/day.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for three of five trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final Mill effluent to have been not acutely lethal to test fish. The remaining samples, when tested, resulted in 96 hour LC50s > 100 % effluent.

03/13/91

000093-00-0(8) QUEBEC AND ONTARIO PAPER COMPANY LTD. THOROLD REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, 1990 NET DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL	2700	2900	2300	1900	1700	1900	2300	1900				3200	2311	
KG /DAY (RSP)	REQUIREMENT	6800	6800	6800	6800	6800	6800	6800	6800				6800	6800	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 9, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000093-00-0(8) QUEBEC AND ONTARIO PAPER COMPANY LTD. THOROLD REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	58173	55164	56642	62893	65795	65113	63648	67106				62072	61845	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	1127	999	860	942	1368	1499	1691	3526				2360	1597	
KG /DAY (BOD5)	REQUIREMENT	18140	18140	18140	18140	18140	18140	18140	18140				18140	18140	0
RESIDUE PARTIC.	CALC	3144	3332	2723	2961	2621	2823	3333	2922				4572	3159	
KG /DAY (RSP)	REQUIREMENT														

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 9, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

COMPANY DID NOT DISCHARGE DURING SEPTEMBER TO NOVEMBER 1990 DUE TO STRIKE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Rexwood Products Ltd. New Liskeard

IMISNO.: 0008501007

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Miscellaneous

SIC CODE: 2593

RECEIVING WATERBODY: DIRECT: Lake Timiskaming
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures particle board.

EFFLUENT CHARACTERISTICS: Leachate from woodwaste landfill site contains BOD, suspended solids and phenols.

EFFLUENT TREATMENT: Nil - leachate generation minimized by capping original fill area.

DISCHARGE TYPE: Continuous from March to December.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Leachate quality is regulated by Objectives for the Control of Industrial Waste Discharges in Ontario.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (5), Suspended Solids (RSP) (4)

REMEDIAL ACTIONS: Stormwater has been diverted around landfill site; drainage culvert through the site has been isolated by capping ends which is expected to eliminate leachate flow.

COMMENTS: Study of receiving water in 1986 showed no significant impact of leachate on Lake Timiskaming. Sampling program is not scheduled for winter months.

12/16/91

008501-00-0(7) REXWOOD PRODUCTS LIMITED NEW LISKEARD REPORT DATE: 22 NOV 91

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				392	394	280	32.7	23.6	17.1	33.3			168	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL				3.92	9.06	12.3	1.6	1.37	1.04	0.33			4.23	
KG /DAY (BOD5)	GUIDELINE				5.89	5.91	4.2	0.49	0.35	0.26	0.5			2.51	5
PHENOLS UNF-REAC	ACTUAL				0.000008	0.000035	0.000001	0.000002	0.000001	0.000001	0.000001			0.000007	
KG /DAY (PHNOL)	GUIDELINE				0.0079	0.0079	0.0056	0.00065	0.00047	0.00034	0.00067			0.00336	0
RESIDUE PARTIC.	ACTUAL				7.85	1.97	< 1.4	2.5	0.87	0.82	0.2			2.23	
KG /DAY (RSP)	GUIDELINE				5.89	5.91	4.2	0.49	0.35	0.26	0.5			2.51	4

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 57% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Rio Algom Ltd.
& PLANT LOCATION: Panel, Elliot Lake

IMISNO.: 0001670207

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Quirke Lake to Serpent River
INDIRECT: 65 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Uranium ore is mined, milled and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains metal salts, ammonia compounds, and radioactive materials.

EFFLUENT TREATMENT: Addition of barium chloride and lime to precipitate radium, adjust pH and precipitate metals. Precipitates removed followed by removal in settling pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Mine/mill closed September 1990.

The data for one of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent was not acutely lethal to test fish. The other three samples, when tested, resulted in 96 hour LC50s > 100 % effluent. An audit sample tested by the MOE was determined non-lethal.

12/16/91

000167-02-0(7) RIO ALGOM LIMITED - PANEL ELLIOT LAKE REPORT DATE: 8 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	9953	10809	12476	11880	10731	10420	12407	9953	8787	5633	4951	5564	9464	
	GUIDELINE														
PH (PH)	ACTUAL	8.86	8.49	8.28	6.9	7.09	7.68	7.71	7.85	8.43	8.17	7.82	7.6	7.91	
	GUIDELINE														0
COPPER UNF.TOT. KG /DAY (CUUT)	ACTUAL	0.1	0.15	0.09	0.17	0.11	0.18	0.12	0.1	0.11	0.07	0.1	0.1	0.117	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
IRON UNF.TOT. KG /DAY (FEUT)	ACTUAL	1	11.9	2.37	44	13.95	4.06	2.48	1.49	0.7	0.23	1.28	0.28	6.98	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
NICKEL UNF.TOT. KG /DAY (NIUT)	ACTUAL	0.8	0.99	0.96	1.31	0.7	0.51	0.56	0.66	0.88	0.23	0.42	0.78	0.733	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
LEAD UNF.TOT. KG /DAY (PBUT)	ACTUAL	0.63	0.55	0.25	0.34	0.32	0.5	0.5	0.5	0.62	0.08	0.29	0.33	0.409	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RADIUM 226 FIL. MBQ/L AS RA	ACTUAL	155	115	288	156	66	47	154	207	126	298	121	153	157	
	GUIDELINE	740	740	740	740	740	740	740	740	740	740	740	740	740	0
RADIUM 226 MBQ/L AS RA	ACTUAL	461	362	760	478	173	108	202	279	214	356	204	201	317	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	21		47	72	33	31	19	20	26	17	15	22	26.9	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	ACTUAL	0.15	0.39	0.32	1.31	0.57	0.36	0.16	0.13	1.49	0.05	0.43	0.07	0.45	
	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS MINE CLOSED SEPTEMBER 1, 1990

000167-02-0(7) RIO ALGOM LIMITED - PANEL ELLIOT LAKE REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		10808	12373	12020	10892	10499	12504	9993	8845	7457	6533	6668	9872	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.36	8.17	6.97	7.11	7.71	7.78	7.92	8.42	8.17	7.82	7.62	7.82	
(PH)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.11	0.28	0.105	0.229	0.103	0.138	0.105	0.064	0.186	0.144	0.083	0.141	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	CALC		1.65	5.73	35.8	4.7	1.24	1.37	1.16	1.12	0.413	0.344	0.138	4.88	
KG /DAY (FEUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		0.99	1.4	0.843	0.458	0.309	0.687	0.422	0.345	0.757	0.688	0.963	0.715	
KG /DAY (NIUT)	GUIDELINE														
LEAD UNF.TOT.	CALC		0.55	1.12	0.316	0.344	0.309	0.412	0.316	0.16	0.536	0.241	0.172	0.407	
KG /DAY (PBUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		17.1	44.5	72.4	40.1	32.8	20.1	17	27.2	25	22.6	30.7	31.8	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.33	0.559	0.949	0.229	0.206	0.138	0.105	0.2	1.19	0.275	0.193	0.398	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ON THE PREVIOUS PAGE.

RA226F AND RA226T NOT MONITORED UNDER MISA MONITORING REGULATION.

THIS MINE CLOSED SEPTEMBER 1, 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Rio Algom Ltd.
& PLANT LOCATION: Quirke, Elliot Lake

IMISNO.: 0001670108

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 67 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Uranium ore is mined, milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts, ammonia compounds, and radioactive materials.

EFFLUENT TREATMENT: Mill tailings are treated with lime to effect pH control and precipitate metals. Tailings effluent is treated with barium chloride to precipitate Radium 226 and lime addition to adjust pH before final discharge to river.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board (AECB).

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Mine/Mill closed September 1990.

The data for two of four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 31.9 and 80.6 %. One of the remaining two samples had a 96 hour LC50 > 100 % effluent and the other was non-lethal. An audit sample tested by the MOE was determined as non-lethal.

12/16/91

000167-01-0(8) RIO ALGOM LIMITED - QUIRKE ELLIOT LAKE REPORT DATE: 9 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13064	12528	23449	30871	10731	31104	10040	10247	7776	22663	24470	15673	17718	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.15	7.75	7.22	7.25	7.2	7.46	7.03	7.3	8.13	7.82	8.24	8.22	7.65	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.21	0.23	0.4	0.59	0.16	0.34	0.11	0.14	0.23	0.07	0.1	0.33	0.243	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
IRON UNF.TOT.	ACTUAL	20.6	20.4	47.5	28.8	2.5	5.1	0.9	7.1	1.6	5.4	5.6	7.5	12.8	
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
NICKEL UNF.TOT.	ACTUAL	0.94	0.53	1.62	2.28	0.52	3.73	1.41	0.36	0.86	1.54	1.71	0.56	1.34	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
LEAD UNF.TOT.	ACTUAL	1.01	0.48	0.05	0.74	0.43	1.03	0.3	0.41	0.7	2.25	0.22	0.82	0.703	
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RADIUM 226 FIL.	ACTUAL	77	< 37	48	70	51	53	116	128	95	109	58	63	72	
MBQ/L AS RA	GUIDELINE	740	740	740	740	740	740	740	740	740	740	740	740	740	0
RADIUM 226	ACTUAL	832	360	235	387	163	199	182	162	146	168	169	207	268	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	135	53	124	122	19	78	30	41	39	60	49	47	66.4	
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
ZINC UNF.TOT.	ACTUAL	0.24	0.13	0.54	0.68	0.11	0.44	0.13	0.3	0.31	0.32	0.46	0.01	0.306	
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS MINE CLOSED SEPTEMBER 1, 1990

000167-01-0(8) RIO ALGOM LIMITED - QUIRKE ELLIOT LAKE REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA
FLOW/LOADING PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL		12565	22769	31288	9887	31734	10332	10521	7821	23314	25281	22825	18940	
	GUIDELINE														
PH (PH)	ACTUAL		7.72	7.22	7.24	7.2	7.44	7.1	7.37	8.09	7.82	8.25	8.16	7.6	
	GUIDELINE														
COPPER UNF.TOT. KG /DAY (CUUT)	CALC		0.234	0.789	0.302		0.667	0.053	0.162	0.202	0.617	0.509	1.64	0.518	
	GUIDELINE														
IRON UNF.TOT. KG /DAY (FEUT)	CALC		33.3	181	10.9		5.37	0.424	1.62	3.56	1.14	7.76	16.1	26.1	
	GUIDELINE														
NICKEL UNF.TOT. KG /DAY (NIUT)	CALC		0.937	3.55	1.51		4.87	0.53	0.566	0.202	1.62	1.55	2.3	1.76	
	GUIDELINE														
LEAD UNF.TOT. KG /DAY (PBUT)	CALC		0.586	2.76	1.21		1.34	0.159	0.324	0.113	1.78	1.2	1.64	1.11	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC		52.2	133	135	16.8	82.9	31.9	26.4	32.2	56	61.1	65.5	63	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC		0.234	0.789	0.302		0.672	0.159	0.162	0.445	1.69	1.79	1.97	0.821	
	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ON THE PREVIOUS PAGE.

RA226F AND RA226T NOT MONITORED UNDER MISA MONITORING REGULATION.

THIS MINE CLOSED SEPTEMBER 1, 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Rio Algom Ltd. Stanleigh, Elliot Lake

IMIS NO.: 0001670306

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River (McCabe Lake)
INDIRECT: Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Uranium ore mined, milled and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Effluent system consists of tailings area, sequential addition of barium chloride and lime, filtration plant to remove solids.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for two of four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent was not acutely lethal to test fish. The remaining two samples resulted in 96 hour LC50s > 100 % effluent. An audit sample tested by the MOE was determined non-lethal.

12/16/91

000167-03-0(6) RIO ALGOM LIMITED - STANLEIGH ELLIOT LAKE REPORT DATE: 8 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	20710	20710	17677	15880	20485	21004	19578	9936	6687	15924	13910	22300	17067	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.91	8.66	8.2	7.43	7.41	7.28	7.54	7.57	7.01	7.44	7.3	7.27	7.59	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.12	0.23	0.18	0.22	0.23	0.19	0.23	0.03	0.13	0.19	0.28	0.47	0.208	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
NICKEL UNF.TOT.	ACTUAL	0.66	0.7	0.87	0.87	1	0.71	0.94	0.43	0.27	0.99	0.86	1.43	0.811	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
LEAD UNF.TOT.	ACTUAL	0.89	0.68	0.94	0.41	0.61	0.21	0.78	0.4	0.2	1.43	1.31	2.68	0.878	
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RADIUM 226 FIL.	ACTUAL	66			39	< 37	< 37	56	43	64	< 37	41	129	54.9	
MBQ/L AS RA	GUIDELINE	740			740	740	740	740	740	740	740	740	740	740	0
RADIUM 226	ACTUAL	163	111	224	302	228	176	336	300	397	1242	1048	1196	477	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	116	181	187	140	154	164	166	139	74	207	139	268	161	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.77	0.46	0.2	0.27	0.35	0.11	0.35	0.3	0.27	0.3	0.19	0.36	0.33	
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

THIS MINE CLOSED SEPTEMBER 1, 1990

000167-03-0(6) RIO ALGOM LIMITED - STANLEIGH ELLIOT LAKE REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		20714	19174	16249	20342	20958	18632	15101	13275	16045	14348	23167	18000	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.68	8.21	7.42	7.23	7.25	7.44	7.37	7.01	7.38	7.28	7.38	7.51	
(PH)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.208	0.428	0.202	0.404	0.202	0.257		0.272	0.415	0.262	0.761	0.341	
KG /DAY (CUUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		0.83	1.07	1.01	0.606	1.01	1.29		0.704	1.15	0.805	0.508	0.898	
KG /DAY (NIUT)	GUIDELINE														
LEAD UNF.TOT.	CALC		0.623	1.07	0.806	0.606	0.807	0.771		0.207	1.18	1.92	2.28	1.03	
KG /DAY (PBUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		144	236	155	148	181	184	169	177	216	160	307	189	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.415	0.428	0.403	0.404	0.404	0.771		0.254	0.507	0.35	1.45	0.539	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
LIMITS ARE ESTABLISHED BY AECB LICENCE REQUIREMENTS AND ARE PRESENTED ON THE PREVIOUS PAGE.

RA226F AND RA226T NOT MONITORED UNDER MISA MONITORING REGULATION.

THIS MINE CLOSED SEPTEMBER 1, 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Rohm and Haas Canada Ltd. Morrisburg

IMISNO.: 0000580100

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Organic Chemicals

SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Polymethylmethacrylate is manufactured using a cell casting polymerization process and an extrusion process. Oil additives are produced through polymerization of acrylic esters.

EFFLUENT CHARACTERISTICS: A single effluent, a combination of 2 process effluents, cooling water, storm water and effluent from a package sewage treatment plant, is discharged.

EFFLUENT TREATMENT: No effluent treatment. Process streams from the polymer casting and oil additives plant pass through an oily water separator.

DISCHARGE TYPE: The effluent is discharged to the St. Lawrence via a ditch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges In Ontario.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Company is part of MISA Organic Chemical Sector which will lead to enforceable requirements.

01/08/92

000058-01-0(0) ROHM + HAAS CANADA LTD. MORRISBURG REPORT DATE: 16 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	575	667	665	679	712	727	594	685	389	626	520	470	609	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	12.6	10.2	4.1	3.71	2.69	2.39	2.8	2.22	2.11	2.84	2.19	2.36	4.19	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.098	0.105	0.201	0.153	0.185	0.112	0.075	0.087	0.098	0.12	0.06	0.032	0.111	
KG /DAY (PPUT)	GUIDELINE	0.575	0.667	0.665	0.679	0.712	0.727	0.594	0.685	0.389	0.626	0.52	0.47	0.609	0
RESIDUE FILTERED	ACTUAL										873			873	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5.30	11.1	7.00	4.26	5.19	4.35	5.49		4.48	3.94	1.95	3.07	5.11	
KG /DAY (RSP)	GUIDELINE	14.38	16.68	16.62	16.97	17.78	18.17	14.85		9.73	15.65	13.00	11.75	15.05	0

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000058-01-0(0) ROHM + HAAS CANADA LTD. MORRISBURG REPORT DATE: 11 OCT 91

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	575	667	662	670	712	727	594	685	628	626	487	454	624	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	CALC		100			32.3			144					92.1	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.0424	0.0751	0.201	0.101	0.159	0.113	0.075	0.0871	0.11				0.107	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	4.16	6.55	6.78	5.06	4.64	3.38	3.31	1.71	5.19				4.53	
KG /DAY (RSP)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Rothsay, The Rendering Division of Maple Leaf Mills Ltd. Rothsay

IMIS NO.: 002648202

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE:

RECEIVING WATERBODY: DIRECT: Moorefield Creek to Conestogo River to Grand River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Rendering.

EFFLUENT CHARACTERISTICS: Contains phosphorus, hydrogen sulphide and dissolved organics.

EFFLUENT TREATMENT: Grease skimming, screening, flow equalization, flocculation, dissolved air flotation, aeration, sedimentation, and treated effluent polishing in holding lagoons by aeration and lime treatment for ammonia and phosphorus reduction.

DISCHARGE TYPE: Seasonal; discharge permitted only in November - February period.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (Nov. 1988): Effluent limits are those of current C. of A. #4-079-84-887 issued Nov. 88. Limits vary with creeks flow and ammonia-nitrogen concentrations, and with the month. C. of A. allows spray irrigation on company's land of up to 91,000 cubic metres (20 million gallons) of treated effluent a year and requires existing irrigation system be maintained as a backup for drought flow years.

EXCEEDANCES: pH (2), Hydrogen Sulfide (1): The Hydrogen Sulphide exceedance was a result of analytical interference.

REMEDIAL ACTIONS: The facility is capable of consistently meeting criteria, however due to limits close to the analytical detection limit, slight exceedances can be recorded.

COMMENTS: Reported loadings are based on measured flow rate.

Discharge is on a batch basis from a treated lagoon and quality is consistently within criteria except as noted above. The exceedances are considered insignificant.

002648-02-0(2) ROTHSAY, THE RENDERING DIV. OF MAPLE LEAF MILLS LTD. CAMBRIDGE

CONTROL POINT: 0100, 1990 DATA

REPORT DATE: 2 DEC 91

FLOW/LOADING PARAMETERS		JAN 5	JAN 10	JAN 17	JAN 23	JAN 30	NOV 1	NOV 8	NOV 15	DEC 13	DEC 20	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	7171	5875	6221	2592	691	1382	4925	3888	4320	4234	4130	
M3 /DAY (FTFLOW)	GUIDELINE	10109	5962	6221	12700	12355	1987	9850	6134	8640	58752	13271	0
PH	ACTUAL	6.75	6.90	7.00	7.10	7.50	7.70	7.80	8.00	7.40	7.60	7.38	
(PH)	REQUIREMENT												2
TOD	ACTUAL	527	410	430	165	37.8	50.2	511	675	232	278	332	
KG /DAY (TOD)	REQUIREMENT	3312	1833	1916	4093	4069	852	5530	3132	6912	4278	3593	0
NH3-N TOTAL	ACTUAL	77.0	62.4	67.1	25.4	7.00	9.10	32.0	25.7	51.8	48.7	40.6	
KG /DAY (NNHTFR)	REQUIREMENT	108	63.2	67.2	123	132	12.7	63.8	39.1	102	66.8	77.9	0
PHOSPHOR UNF. TOT.	ACTUAL	0.65	0.29	0.31	0.16	0.06	0.07	0.05	0.04	0.22	0.21	0.21	
KG /DAY (PPUT)	REQUIREMENT	10.1	5.96	6.22	12.7	12.4	1.99	9.85	6.13	8.64	58.8	13.3	0
RESIDUE PARTIC.	ACTUAL	66.7	41.1	49.8	18.1	2.76	16.0	12.0	17.0	9.20	13.0	24.6	
KG /DAY (RSP)	REQUIREMENT	152	89.4	93.3	191	185	29.8	148	92.0	130	881	199	0
HYD. SULPHIDE	ACTUAL	0.22	0.24	0.12	0.01	0.03	0.03	0.15	0.08	0.22	0.09	0.12	
KG /DAY (SSIDA)	REQUIREMENT	0.24	0.13	0.13	0.24	0.24	0.16	0.67	0.44	0.47	0.31	0.30	1

NOTE: PH-LIMITS 7.00 - 8.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL WEEKLY LIMITS 3 OUT OF 70, FOR A TOTAL COMPLIANCE RECORD OF 95.7 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Royal Oak Mines Inc. (previously reported as Giant Yellowknife Mines) Pamour Mine, Timmins

IMIS NO.: 0001090109

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: creek (unnamed)
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered by the Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, lead, nickel.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (September 4, 1991) A Certificate of Approval was issued for the operation in September of 1987 and became effective on May 5, 1988.

EXCEEDANCES: Suspended Solids (RSP) (3), Phosphorus (1)

REMEDIAL ACTIONS: Suspended solids and phosphorus were marginally over the limit and remedial action was not required. One exceedance of suspended solids was attributed to improper sampling technique.

COMMENTS: In 1987 a heap leaching facility was constructed at the site in addition to the existing operation. Barren Bleed is segregated from active tailings area.

One trout bioassay conducted in 1990, indicated the final effluent to have been non-acutely lethal to test fish.

The data for one of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the decant Weir # 2 effluent to had been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 6.9 %. One of the two remaining samples had a measured LC50 > 100 % effluent and the other was determined non-lethal.

An audit sample of the decant Weir 1A was tested by the MOE and determined as not acutely lethal.

12/16/91

000109-01-0(9) ROYAL OAK MINES INC. - PAMOUR MINE TIMMINS REPORT DATE: 29 NOV 91

CONTROL POINT: 0400 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.011	0.017	0.012	0.12	0.01	0.004	0.042	0.03	0.027	0.006	0.006		0.026	
MG/L AS AS	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0
CYANIDE AVAIL	ACTUAL	0.715	1.26	1.2	0.97	0.028	0.07	0.045	0.01	0.073	0.05	0.013		0.403	
MG/L AS HCN	REQUIREMENT	2	2	2	2	2	2	2	2	2	2	2		2	0
COPPER UNF.TOT.	ACTUAL	0.08	0.121	0.143	0.09	0.03	0.04	0	0.03	0	0	0		0.049	
MG/L AS CU	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
IRON UNF.TOT.	ACTUAL	0.35	0.63	0.47	0	0.2	0.08	0.175	0.143	0.075	0.025	0.05		0.2	
MG/L AS FE	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
NICKEL UNF.TOT.	ACTUAL	0.36	0.29	0.475	0.32	0.09	0.07	0.023	0.05	0.063	0.025	0		0.161	
MG/L AS NI	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
NH3-N UNF.REAC	ACTUAL	2.19	1.25	1	2.36	2.4	0.57	0.025	0	0.75	1.2	1.8		1.23	
MG/L AS N (NNH3UR)	REQUIREMENT	10	10	10	10	10	10	10	10	10	10	10		10	0
LEAD UNF.TOT.	ACTUAL	0.006	0.006	0.008	0.03	< 0.03	0.08	0.035	0	0	0.075	0		0.025	
MG/L AS PB	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
PH	ACTUAL	7.5	7.9	7.7	7.85	7.76	8.4	7.8	8.1	7.9	7.7	7.5		7.83	
(PH)	REQUIREMENT														0
PHOSPHOR UNF.TOT.	ACTUAL	0.57	0.965	0.923		0.45	0.58	0	0.2	1.35	0.143	0.24		0.542	
MG/L AS P (PPUT)	REQUIREMENT	1	1	1		1	1	1	1	1	1	1		1	1
RESIDUE PARTIC.	ACTUAL	7	10.2	7	4.75	4	8.75	37.5	14.8	15.3	15.5	4.8		11.8	
MG/L (RSP)	REQUIREMENT	15	15	15	15	15	15	15	15	15	15	15		15	3
ZINC UNF.TOT.	ACTUAL	0.023	0.008	0	0.23	0.168	0.04	0	0	0	0	0		0.043	
MG/L AS ZN	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 120, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1990.

COMPANY DID NOT DISCHARGE DURING THE MONTH OF DECEMBER 1990

000109-01-0(9) ROYAL OAK MINES INC. - PAMOUR MINE TIMMINS REPORT DATE: 09 JAN 92

S U M M A R Y FOR EMIS. TYPE: 45 FINAL EFFLUENT DISCHARGED INTO: 04/001/0230 NAMELESS CREEK TO MATTAWISHKWIA RIVER

INCLUDES CONTROL POINTS: 0100 0200

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		2921	7216	5046	9599	3016	4399	3374	1432	4586	2911		4450	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.27	7.66	7.64	7.73	8.37	8.15	7.54	7.42	7.45	7.25		7.75	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL		0.147	0.171	0.137	0.109	0.0232	0.0319	0.0517	0.0142	0.047	0.0225		0.0753	
KG /DAY (ASUT)	GUIDELINE														
CYANIDE AVAIL	ACTUAL		18.2	4.98	0.912	0.433	0.161	0.041	0.0602	0.262	0.42040	0.0948		2.55	
KG /DAY (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL		2.34	1.21	0.447	0.236	0.0992	0.218	0.0352	0.0122	0.099	0.0317		0.473	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	ACTUAL		0.93	1.15	0.724	1.11	0.315	1.04	1.27	1.34		0.39		0.919	
KG /DAY (FEUT)	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL		2.25	1.73	0.948	0.98	0.154	0.197	0.0886	0.0236	0.136	0.0766		0.658	
KG /DAY (NIUT)	GUIDELINE														
NH3-N TOTAL	CALC		12.9	16	11.7	24.3	1.67	1.87	1.08	3.26	7.407	6.1		8.63	
KG / DAY (NHNTFR)	GUIDELINE														
LEAD UNF. TOT.	CALC		0.091	0.217	0.151	0.265	0.073	0.09	0.067	0.025	0.093	0.058		0.113	
KG / DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL		1.77	2.31	1.61	2.49	0.586	1.22	1.23	1.81		0.534		1.51	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL		148	37.1	50.7	162	56.5	151	44.4	24.2	108.20	25.8		81	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL		0.201	0.11		2.46	0.102	0.049	0.0344	0.0122	0.056	0.0299		0.339	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL.

THE COMBINED EFFLUENT FROM CONTROL POINTS 0100 AND 0200 (MISA) WAS PREVIOUSLY REPORTED AS CONTROL POINT 0400 (IMIS).

000109-01-0(9) ROYAL OAK MINES INC. - PAMOUR MINE TIMMINS REPORT DATE: 09 JAN 92

CONTROL POINT: 0100 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		2921	7216	5046	9599	3016	4399	3374	845	2752	2098		4127	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.27	7.66	7.64	7.73	8.37	8.15	7.54	7.52	7.56	7.16		7.76	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	CALC		0.147	0.171	0.137	0.109	0.0232	0.0319	0.0517	0.00767	0.0281	0.0136		0.0719	
KG /DAY (ASUT)	GUIDELINE														
CYANIDE AVAIL	CALC		18.2	4.98	0.912	0.433	0.161	0.041	0.0602	0.0435	0.0141	0.0189		2.48	
KG /DAY (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	CALC		2.34	1.21	0.447	0.236	0.0992	0.218	0.0352	0.00638	0.0285	0.022		0.465	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	CALC		0.93	1.15	0.724	1.11	0.315	1.04	1.27		0.0629	0.39		0.777	
KG /DAY (FEUT)	GUIDELINE														
NICKEL UNF.TOT.	CALC		2.25	1.73	0.948	0.98	0.154	0.197	0.0886	0.0127	0.0402	0.0372		0.64	
KG /DAY (NIUT)	GUIDELINE														
NH3-N TOTAL	CALC		12.9	16	11.7	24.3	1.67	1.87	1.08	1.07	0.477	3.18		7.42	
KG / DAY (NNHTFR)	GUIDELINE														
LEAD UNF. TOT.	CALC		0.091	0.217	0.151	0.265	0.073	0.09	0.067	0.013	0.0559	0.042		0.106	
KG / DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC		1.77	2.31	1.61	2.49	0.586	1.22	1.23			0.534		1.47	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		148	37.1	50.7	162	56.5	151	44.4	8.19	40.7	14.5		71.3	
KG /DAY (RSP)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.201	0.11	0	2.46	0.102	0.049	0.0344	0.00638	0.03	0.0217		0.301	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL.

THE COMBINED EFFLUENT FROM CONTROL POINTS 0100 AND 0200 (MISA) WAS PREVIOUSLY REPORTED AS CONTROL POINT 0400 (IMIS).

000109-01-0(9) ROYAL OAK MINES INC. - PAMOUR MINE TIMMINS

CONTROL POINT: 0200 1990 MISA DATA

REPORT DATE: 09 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE									587	1834	813		1078	
PH (PH)	ACTUAL GUIDELINE									7.31	7.33	7.34		7.33	
ARSENIC UNF.TOT. KG /DAY (ASUT)	CALC GUIDELINE									0.00655	0.0184	0.00886		0.0113	
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC GUIDELINE									0.219	0.406	0.0759		0.234	
COPPER UNF.TOT. KG /DAY (CUUT)	CALC GUIDELINE									0.00587	0.0702	0.00964		0.0286	
IRON UNF.TOT. KG /DAY (FEUT)	CALC GUIDELINE									1.34	2.2			1.77	
NICKEL UNF.TOT. KG /DAY (NIUT)	CALC GUIDELINE									0.0109	0.0961	0.0393		0.0488	
NH3-N TOTAL KG / DAY (NNHTFR)	CALC GUIDELINE									2.19	6.93	2.92		4.01	
LEAD UNF. TOT. KG / DAY (PBUT)	CALC GUIDELINE									0.012	0.0367	0.016		0.0216	
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	CALC GUIDELINE									1.81				1.81	
RESIDUE PARTIC. KG /DAY (RSP)	CALC GUIDELINE									16	67.5	11.2		31.6	
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC GUIDELINE									0.00587	0.0259	0.00813		0.0133	

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL.

THE COMBINED EFFLUENT FROM CONTROL POINTS 0100 AND 0200 (MISA) WAS PREVIOUSLY REPORTED AS CONTROL POINT 0400 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Royal Oak Mines Inc. (previously reported as Giant Yellowknife Mines) Schumacher Mine, Timmins

IMISNO.: 0001090000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: swamp
INDIRECT: North Porcupine River

DESCRIPTION OF ACTIVITY: Gold Mining using the Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Cyanide, copper, zinc and nickel in effluent.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (August 9/88) At the time of issuance, the C. of A. incorporated the mining guideline effluent criteria as a requirement.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Mill has shutdown and tailings area was partially reclaimed by ERG Resources project. Accumulated run off is now collected and discharged when C. of A. discharge criteria is met.

12/16/91

000109-00-0(0) ROYAL OAK MINES INC. - SCHUMACHER MINE TIMMINS REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL					0.005	0.004	0	0.001	0.001	0	0.001		0.002	
MG/L AS AS	REQUIREMENT					0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0
CYANIDE AVAIL	ACTUAL						0.006	0.02	0.018	0.01	0.003	0.01		0.011	
MG/L AS HCN	REQUIREMENT						2	2	2	2	2	2		2	0
COPPER UNF.TOT.	ACTUAL					0.21	0.18	0.175	0.108	0.148	0.115	0.15		0.155	
MG/L AS CU	REQUIREMENT					1	1	1	1	1	1	1		1	0
IRON UNF.TOT.	ACTUAL						0.1	0.025	0		0.05	0		0.035	
MG/L AS FE	REQUIREMENT						1	1	1		1	1		1	0
NICKEL UNF.TOT.	ACTUAL					0.055	0.04	0.04	0.05	0.08	0.05	0.05		0.052	
MG/L AS NI	REQUIREMENT					1	1	1	1	1	1	1		1	0
NH3-N UNF.REAC	ACTUAL					0.8	0.21	0.04	0.03		0.13	0.18		0.232	
MG/L AS N(NNH3UR)	REQUIREMENT					10	10	10	10		10	10		10	0
LEAD UNF.TOT.	ACTUAL							0.028	0.06	0.05	0.025	0.025		0.038	
MG/L AS PB	REQUIREMENT							1	1	1	1	1		1	0
PH	ACTUAL					7.69	7.8	7.8	8.1	8.05	7.7	7.7		7.83	
(PH)	REQUIREMENT														0
PHOSPHOR UNF.TOT.	ACTUAL						0.1	0.03	0.6		0.34	0.19		0.252	
MG/L AS P (PPUT)	REQUIREMENT						1	1	1		1	1		1	0
RESIDUE PARTIC.	ACTUAL					8.25	4.25	4.5	6.8	6	9	9.5		6.9	
MG/L (RSP)	REQUIREMENT					15	15	15	15	15	15	15		15	0
ZINC UNF.TOT.	ACTUAL					0.06	0.06	0.045	0.008	0.008	0.025	0.025		0.033	
MG/L AS ZN	REQUIREMENT					1	1	1	1	1	1	1		1	0

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 69, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

COMPANY DID NOT DISCHARGE JANUARY TO APRIL 1990

000109-00-0(0) ROYAL OAK MINES INC. - SCHUMACHER MINE TIMMINS
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA
REPORT DATE: 09 JAN 92

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL														
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL					0.00525		0.005	0.032					0.0141	
MG/L (ASUT)	GUIDELINE														
CYANIDE AVAIL	ACTUAL					0.00788		0.00533	0.0734					0.0289	
MG/L AS HCN	GUIDELINE														
COPPER UNF.TOT.	ACTUAL					0.219		0.281	0.17					0.223	
MG/L (CUUT)	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL					0.0513		0.0553	0.0572					0.0546	
MG/L (NIUT)	GUIDELINE														
PH	ACTUAL					7.67		7.98	7.85					7.83	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL					6.63		5	10.4					7.34	
MG/L (RSP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL					0.155		0.028	0.028					0.0703	
MG/L (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

COMPANY DID NOT DISCHARGE JANUARY TO APRIL 1990

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Shell Canada Ltd. Corunna

IMISNO.: 0000510107

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651, 373

RECEIVING WATERBODY: DIRECT: Talfourd Creek
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products

EFFLUENT CHARACTERISTICS: Contains insoluble and dissolved compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Physical treatment and biotreatment for process water. Gravity separation for once through cooling water that may become potentially contaminated. Stormwater may be discharged if clean or biotreated if contaminated.

DISCHARGE TYPE: Continuous through two outfalls, batch through one outfall for the storm pond.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0048-87-006 for stormwater retention pond sets limits for pH, ammonia, solvent extractables, phenols and volatile suspended solids. C. of A. #4-0093-88-006 for biotreatment effluent limits for phenols and volatile suspended solids. MOE or Federal Guidelines: Objectives for the Control of Wastewater Discharges in Ontario (Provincial).

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company has converted to MISA monitoring and GROSS loadings and should not be compared to the NET loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings.

04/22/92

000051-01-0(7) SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURING CORUNNA — REPORT DATE: 28 JAN 92

S U M M A R Y INCLUDES CONTROL POINTS 0200 0500 - MISA DATA (GROSS LOADINGS)

1990 MISA DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	101566	103413	101337	103196	122023	128864	141208	138186	136338	130825	95734	75936	114886	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.66	7.8	7.63	7.69	7.78	7.83	7.86	7.92	7.85	7.92	7.91	7.79	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	32.2	20.7	20.4	23.8	24.6	25.6	28.1	30.5	27.2	27.1	19.5	18	24.8	
KG /DAY (NNHTFR)	GUIDELINE	1020	1034	1017	1026	1232	1279	1389	1388	1359	1318	970	749	1148	0
PHENOLS UNF-REAC	CALC	0.255	0.426	0.417	0.436	0.522	0.569	0.458	0.378	0.401	0.294	0.221	0.17	0.379	
KG /DAY (PHNOL)	GUIDELINE	2.03	2.08	2.03	2.05	2.45	2.58	2.82	2.76	2.72	2.6	1.92	1.54	2.298	0
RESIDUE PARTIC.	CALC	890	1198	1112	1125	1633	1442	2357	1469	1758	1239	726	428	1281	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	240	244	275	299	319	195	292	261	375	346	268	149	272	
KG /DAY (SOLEXT)	GUIDELINE	1524	1534	1505	1536	1824	1915	2084	2071	2035	1947	1437	1150	1714	0
SULPHIDE UNF.REAC	CALC	2.08	2.24	2.04	5.89	2.46	2.56	4.56	2.95	2.72	2.91	1.96	1.69	2.84	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	1401	1609	1366	2060	2433	1650	1757	1467	1801	1300	926	831	1550	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000051-01-0(7) SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURING CORUNNA

CONTROL POINT: 0200, 1990 MISA DATA (GROSS DATA)

REPORT DATE: 28 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	12296	11329	12153	13982	15060	14912	16458	15621	15979	15684	13623	12870	14164	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.76	7.66	7.8	7.61	7.6	7.76	7.81	7.78	7.83	7.77	7.84	7.82	7.75	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	10.5	2.3	2.4	6.1	3	2.96	3.56	4.35	3.17	3.9	2.78	5.57	4.22	
KG /DAY (NNHTFR)	GUIDELINE	123	115	119	139	150	148	163	156	158	158	136	129	141	0
PHENOLS UNF-REAC	CALC	0.067	0.101	0.143	0.091	0.121	0.115	0.069	0.056	0.081	0.065	0.045	0.041	0.0829	
KG /DAY (PHNOL)	GUIDELINE	0.246	0.227	0.243	0.28	0.301	0.298	0.329	0.312	0.32	0.314	0.272	0.257	0.283	0
RESIDUE PARTIC.	CALC	187	207	354	269	620	451	830	264	282	245	132	95.1	328	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	30.8	33.1	48	46.2	63.6	33.7	61.5	28.7	46.3	42.7	37.7	24.9	41.4	
KG /DAY (SOLEXT)	GUIDELINE	185	173	179	209	225	222	245	235	238	237	204	193	212	0
SULPHIDE UNF.REAC	CALC	0.24	0.404	0.239	4.12	0.3	0.303	0.709	0.339	0.317	0.594	0.291	0.446	0.692	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	261	322	361	375	386	353	498	179	268	230	173	172	298	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

000051-01-0(7) SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURING CORUNNA

CONTROL POINT: 0500, 1990 MISA DATA (GROSS DATA)

REPORT DATE: 28 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	89270	92084	89184	89214	106963	113952	124750	122565	120359	115141	82111	63066	100722	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.63	7.66	7.8	7.64	7.78	7.8	7.85	7.93	8	7.92	7.99	8	7.83	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	21.7	18.4	18	17.7	21.6	22.6	24.5	26.1	24	23.2	16.7	12.4	20.6	
KG /DAY (NNHTFR)	GUIDELINE	897	919	898	887	1082	1131	1226	1232	1201	1160	834	620	1007	0
PHENOLS UNF-REAC	CALC	0.188	0.325	0.274	0.345	0.401	0.454	0.389	0.322	0.32	0.229	0.176	0.129	0.296	
KG /DAY (PHNOL)	GUIDELINE	1.78	1.85	1.78	1.77	2.15	2.28	2.49	2.45	2.40	2.29	1.65	1.28	2.01	0
RESIDUE PARTIC.	CALC	703	991	758	856	1013	991	1527	1205	1476	994	594	333	953	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	209	211	227	253	255	161	230	232	329	303	230	124	230	
KG /DAY (SOLEXT)	GUIDELINE	1339	1361	1326	1327	1599	1693	1839	1836	1797	1710	1233	957	1501	0
SULPHIDE UNF.REAC	CALC	1.84	1.84	1.8	1.77	2.16	2.26	3.85	2.61	2.4	2.32	1.67	1.24	2.15	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	1140	1287	1005	1685	2047	1297	1259	1288	1533	1070	753	659	1252	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Sifto Canada Inc.
& PLANT LOCATION: Goderich

IMIS NO.: 0000140707

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 079

RECEIVING WATERBODY: DIRECT: Maitland River
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Salt is mined and purified for use.

EFFLUENT CHARACTERISTICS: Contains dissolved chlorides and sulphates of sodium, calcium etc.

EFFLUENT TREATMENT: Settling basins.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: Suspended Solids (RSP) (4)

REMEDIAL ACTIONS: Discharges from the boiler feedwater treatment facility, which caused the exceedances, has been stopped as of August 1991.

COMMENTS: Effluent now meeting MOE guidelines.

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Manhole 3A effluent to have been not acutely lethal to test fish.

01/08/91

000014-07-0(7) SIFTO CANADA INC. GODERICH REPORT DATE: 28 JAN 92
CONTROL POINT: 0100, 1990 DATA
FLOW/LOADING PARAMETERS

		JAN	FEB #	MAR #	APR #	MAY #	JUN #	JUL #	AUG #	SEP #	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	8789	7718	7448	7622	7486	6741	7448	6966	8183	9175	10514	10218	8192	
	GUIDELINE														
PH (PH)	ACTUAL	7.9	7.85	7.85	7.83	7.77	7.79	7.73	7.74	7.72	7.66	7.82	7.75	7.78	
	GUIDELINE														0
CHLORIDE UNF.REAC KG /DAY (CLIDUR)	CALC	29369	23118	11338	27771	21748	15191	17457	21192	52844	70103	43488	45863	31624	
	GUIDELINE														
RESIDUE FILTERED KG /DAY (RSF)	CALC	58991	49985	20185	217322	41662	99597	22249	28058	25745	32400	34287	77736	59018	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	167	57.3	19.3	27.8	425	52.7	35.5	200	107	135	854	111	183	
	GUIDELINE	131	116	112	114	112	101	112	104	123	138	158	153	123	4

NOTE: PH-LIMITS 5.50 - 9.50, # - INDICATES MISA DATA

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 83.3 % IN 1990.

THIS COMPANY BEGAN REPORTING DATA UNDER THE MISA MONITORING REGULATION IN FEBRUARY 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Sonoco Limited (previously reported as Trent Valley Paperboard Mills) Trent Valley Mill, Trenton

IMIS NO.: 0001750009

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is cleaned and repulped to form coated paperboards.

EFFLUENT CHARACTERISTICS: Suspended solids and BOD5 concentrations vary depending on wastepaper.

EFFLUENT TREATMENT: Saveall screens and two Krofta clarifiers remove solids.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Effluent objective for suspended solids set out in Certificate of Approval #4-001-82-006 dated February 3rd, 1982 is 140 kg/day. Phosphorus provincial guideline is 1.0 mg/L monthly average concentration.

EXCEEDANCES: Suspended Solids (RSP) (12)

REMEDIAL ACTIONS: The preliminary design specifications for a secondary wastewater treatment plant were completed by the company in 1990. A pilot wastewater treatment plant project was completed during 1991. Evaluation of the treatment plant design and pilot project is on-going in 1992. The current Certificate of Approval RSP limit will be reviewed against the MISA pulp and paper best available technology report to confirm that the limit is not achievable with the existing treatment technology.

COMMENTS: The data for four of twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Process effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 42.4 - 90.0 %. Four of the eight remaining samples resulted in 96 hour LC50s > 100 % effluent and the other four were determined non-lethal. An audit sample tested by the MOE was also determined as not acutely lethal.

01/10/92

000175-00-0(9) SONOCO LIMITED, TRENT VALLEY MILL TRENTON REPORT DATE: 15 OCT 91
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3274	4035	3469	3684	3801	3731	3382	3812	3653	4310	3945	3888	3749	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	CALC	1290	1500	1520	1400	1560	1550	1630	1650	1670	1490	1400	1320	1498	
KG /DAY (BOD5)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	3930	3550	3040	3130	3350	3920	3400	3950	3510	3410	3160	3170	3460	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	1.15	1.43	1.75	0.537	0.77	0.956	1.34	1.42	0.805	0.436	1.47	2.27	1.19	
KG /DAY (PPUT)	GUIDELINE	2.94	3.77	2.92	3.16	4.45	3.68	3.82	3.83	3.50	2.89	4.19	4.72	3.66	0
RESIDUE PARTIC.	ACTUAL	589	718	335	475	458	613	465	542	508	476	553	606	528	
KG /DAY (RSP)	REQUIREMENT	140	140	140	140	140	140	140	140	140	140	140	140	140	12

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 50 % IN 1990.

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Spruce Falls Inc. Kapuskasing

IMISNO.: 0001340009

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 031

RECEIVING WATERBODY: DIRECT: Kapuskasing River
INDIRECT:

DESCRIPTION OF ACTIVITY: Converts softwood (black spruce balsam fir, jack pine) logs and chips into newsprint by 3 different processes - stone ground wood, TMP and Magnefite (Magnefite has spent sulphite liquor recovery). Hydrosulphite is used to brighten the newspaper.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper) and many dissolved organics.

EFFLUENT TREATMENT: Two clarifiers - one for the woodroom and one for total mill effluent (enclosed) are used to remove solids.

DISCHARGE TYPE: Continuous outfall.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (January 28, 1987) The present Control Order requirements for suspended solids are 10 tonnes averaged over 30 consecutive days and 20 tonnes on any given day. The limits for BOD5 vary with flows and temperature (i.e. assimilative capacity) of the Kapuskasing River; the limits range from a low of 26 tonnes averaged over any 30 consecutive days (during summer months) to a high of 34 tonnes averaged over any 30 consecutive days (during the winter months). However, on any given day the BOD5 discharge limit is 40 tonnes.

EXCEEDANCES: Suspended Solids (RSP) (1): The daily maximum limit was exceeded on January 2, 1990 at 27.4 tonnes.

REMEDIAL ACTIONS: A further Control Order is being developed for issuance in 1992. The company has proposed to install secondary treatment by 1994.

COMMENTS: The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Mill Main Sewer effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 5.3 - 46.7 %. An audit sample tested by the MOE was also determined acutely lethal with a 96 hour LC50 of 43.7 % effluent.

12/16/91

000134-00-0(9) SPRUCE FALLS INC. KAPUSKASING REPORT DATE: 14 NOV 91
CONTROL POINT: 0100, MAIN SEWER DISCHARGE 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	73200	77500	79400	78800	72000	90700	93900	103000	87600	85200	77200	76800	82942	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	30000	33000	26000	28000	22000	25000	21000	23000	20000	23000	23000	26000	25000	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	7800	7500	6600	6300	7000	7800	6200	8600	6100	6100	4400	5800	6683	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 95.8 % IN 1990.

000134-00-0(9) SPRUCE FALLS INC. KAPUSKASING REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, MAIN SEWER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	74932	77668	79439	78759	71974	90423	96652	102955	94004	85174	77247	78573	83983	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	29779	32081	32551	32021	29689	34305	34285	40244	50920	48891	33083	29962	35651	
KG /DAY (BOD5)	REQUIREMENT														
RESIDUE PARTIC.	CALC	8871	8021	6689	7357	8124	8451	7056	8976	7198	6090	4274	6115	7268	
KG /DAY (RSP)	REQUIREMENT														

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: St. Andrew Goldfields Ltd. IMISNO.:0112180104
& PLANT LOCATION: Black River - Matheson

MOE REGION: Northeast DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Refining SIC CODE: 104

RECEIVING WATERBODY: DIRECT: North Driftwood Creek
INDIRECT: Driftwood River

DESCRIPTION OF ACTIVITY: 500 Tonnes per day gold mine/mill complex. Gold is removed from slurry by the CIP process and refined using cyanide.

EFFLUENT CHARACTERISTICS: Suspended solids, cyanide, copper, iron, heavy metals.

EFFLUENT TREATMENT: SO2 cyanide destruction, natural degradation, secondary pond.

DISCHARGE TYPE: Seasonal, from April 1 to November 1 maintaining a 90:1 ratio to receiver.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (June 7, 1989)

EXCEEDANCES: pH (1), Suspended solids (3), Iron (3)

REMEDIAL ACTIONS: Investigation of suspended solids exceedance is attributed to algae growth. Company is investigating measures to control algae.

COMMENTS: The data for a trout bioassay submitted to MOE under the MISA monitoring regulation indicated the Minewater effluent was not acutely lethal to test fish. An audit sample tested by the MOE was also non-lethal.

04/24/92

011218-01-0(4) ST. ANDREW GOLDFIELDS LTD. BLACK RIVER - MATHESON REPORT DATE: 09 JAN 92
CONTROL POINT: 0100, MINEWATER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL														
M3 /DAY (FTFLOW)	GUIDELINE							1508	904	1052	2129	1019		1322	
PH	ACTUAL														
(PH)	GUIDELINE							9.49	7.3	7.3	7.68	7.62		7.88	
ARSENIC UNF.TOT.	CALC														
KG /DAY (ASUT)	REQUIREMENT							0.008		0.006		0.015		0.00967	
CYANIDE AVAIL	CALC														
KG /DAY (CCNAUR)	REQUIREMENT							0.143	0.044	0.015	0.393	0.287		0.176	
COPPER UNF.TOT.	CALC														
KG /DAY (CUUT)	REQUIREMENT							0.23		0.063		0.154		0.149	
IRON UNF.TOT.	CALC														
KG /DAY (FEUT)	REQUIREMENT							0.447		1.33		1.32		1.03	
LEAD UNF. TOT.	CALC														
KG /DAY (PBUT)	REQUIREMENT							0.012		0.012		0.007		0.0103	
NICKEL UNF.TOT.	CALC														
KG /DAY (NIUT)	REQUIREMENT							0.021		0.031		0.031		0.0277	
RESIDUE PARTIC.	CALC														
KG /DAY (RSP)	REQUIREMENT							73.6	26.9	8.98	32	17.4		31.8	
ZINC UNF.TOT.	CALC														
KG /DAY (ZNUT)	REQUIREMENT							0.013		0.011		0.004		0.00933	

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

THIS COMPANY BEGAN DISCHARGING IN JULY 1990.

011218-01-0(4) ST. ANDREW GOLDFIELDS LTD. BLACK RIVER - MATHESON REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, MINEWATER DISCHARGE 1990 MISA DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL							1508	904	1052	2129	1019		1322	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL							9.49	7.3	7.3	7.68	7.62		7.88	
(PH)	GUIDELINE														1
ARSENIC UNF.TOT.	ACTUAL							0.007	0.004	0.005	0.01	0.02		0.0092	
MG/L (ASUT)	REQUIREMENT							0.5	0.5	0.5	0.5	0.5		0.5	0
CYANIDE AVAIL	ACTUAL							0.06	0.041	0.015	0.164	0.268		0.11	
MG/L AS HCN	REQUIREMENT							1	1	1	1	1		1	0
COPPER UNF.TOT.	ACTUAL							0.19	0.14	0.052	0.13	0.21		0.144	
MG/L (CUUT)	REQUIREMENT							0.4	0.4	0.4	0.4	0.4		0.4	0
IRON UNF.TOT.	ACTUAL							0.37	0.66	1.1	1.6	1.8		1.11	
MG/L (FEUT)	REQUIREMENT							1	1	1	1	1		1	3
LEAD UNF. TOT.	ACTUAL							0.01	0.01	0.01	0.01	0.01		0.01	
MG /L (PBUT)	REQUIREMENT							0.1	0.1	0.1	0.1	0.1		0.1	0
NICKEL UNF.TOT.	ACTUAL							0.017	0.005	0.026	0.026	0.042		0.0232	
MG/L (NIUT)	REQUIREMENT							0.3	0.3	0.3	0.3	0.3		0.3	0
RESIDUE PARTIC.	ACTUAL							48.4	28.8	9.03	12.8	16.7		23.1	
MG/L (RSP)	REQUIREMENT							15	15	15	15	15		15	3
ZINC UNF.TOT.	ACTUAL							0.011	0.022	0.009	0.005	0.005		0.0104	
MG/L (ZNUT)	REQUIREMENT							0.1	0.1	0.1	0.1	0.1		0.1	0

NOTE: PH-LIMITS 6.50 - 8.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 45, FOR A TOTAL COMPLIANCE RECORD OF 84.4 % IN 1990.

THIS COMPANY BEGAN DISCHARGING IN JULY 1990.

THESE CONCENTRATION VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: St. Marys Paper Inc. Sault Ste. Marie

IMISNO.:0000860304

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT:

DESCRIPTION OF ACTIVITY: Purchased Kraft pulp is added to the pulp made by the stone ground wood process to make paper specialties. Clay line was added Dec/84. A slush pulp multi-product mill (with no white-water return) was constructed in 1989.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, clay, wood) and soluble organic compounds like sugars.

EFFLUENT TREATMENT: Bull screen precedes clarifier with scum collector on overflow. Underflow solids are dewatered and burned. An internal recovery system removes excess clays.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (May 17, 1989) The discharge of total suspended solids (RSP) averaged over any 30 consecutive working days will not exceed the allowable load levels based on the 1971 Federal Regulations calculated from the Production/Furnish Mix formula. At no time is the maximum daily limit of suspended solids to exceed twice the average allowable load level referred to in the previous sentence.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The company appeared in Court October 22, 1990 and pleaded guilty to 4 charges related to discharges in 1988

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Clear to River effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 14.1 - 80.6 %. An audit sample tested by the MOE was also determined acutely lethal with a 96 hour LC50 of 64.9 % effluent.

12/16/91

000086-03-0(4) ST. MARYS PAPER INC. SAULT STE. MARIE REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	32448	32997	33496	34419	32387	34360	35142	36856	35456	36685	36335	37364	34829	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1800	2700	2000	7000	9100	7400	6300	7000	7300	7800	8900	9900	6433	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RESIDUE PARTIC.	ACTUAL	6000	6020	7820	6590	5200	4760	4100	5000	4740	6220	7980	6950	5948	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000086-03-0(4) ST. MARYS PAPER INC. SAULT STE. MARIE REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW DAILY	ACTUAL	32513	32936	33436	34419	32387	34360	35142	36970	35409	36685	36335	36118	34726	
M3 /DAY (FTFLAV)	GUIDELINE														
BOD 5 DAY	CALC	5809	2692	2038	7110	9092	7416	6280	7022	8617	7380	8621	10298	6864	
KG /DAY (BOD5)	GUIDELINE														
RESIDUE PARTIC.	CALC	5966	6022	7816	6587	5128	4702	4096	4860	4624	6203	7805	5844	5804	
KG /DAY (RSP)	REQUIREMENT														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
THEY ARE PRESENTED HERE FOR COMPARISON PURPOSES.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Stanley Hardware (Division of Stanley Canada Inc.) New Hamburg

IMIS NO.: 0001480003

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 301

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 203 km to Lake Erie

DESCRIPTION OF ACTIVITY: Makes tools, plates hardware, etc.

EFFLUENT CHARACTERISTICS: Contains heavy metals and cyanide.

EFFLUENT TREATMENT: Chrome reduction, cyanide destruction, neutralization, coagulation, sedimentation, and filtration. Sludge is dewatered by filter press. (New treatment plant).

DISCHARGE TYPE: Five day continuous flow 7 am to 12:00 pm to a storm sewer.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval issued July 1989, for new treatment plant.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: New treatment plant effluent quality consistently meets criteria.

000148-00-0(3) STANLEY HARDWARE NEW HAMBURG REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	133	302	258	275	274	209	247	215	247	220	172	217	231	
M3 /DAY (FTFLOW)	REQUIREMENT	304	304	304	304	304	304	304	304	304	304	304	304	304	0
PH	ACTUAL	9.5	9.5	8.6	7.75	8.8	8.4	7.8	7.96	7.5	7.43	7.5	7.64	8.2	
(PH)	REQUIREMENT														0
CYANIDE AVAIL	ACTUAL	0.004	0.018	0.003	0.006	0.007	0.006	0.003	0.004		0.002	0.003	0.002	0.005	
KG /DAY (CCNAUR)	REQUIREMENT	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027		0.027	0.027	0.027	0.027	0
CHROMIUM UNF.TOT.	ACTUAL	0.026	0.052	0.006	0.012	0.007	0.004	0.021	0.029	0.009	0.007	0.008	0.005	0.016	
KG /DAY (CRUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
COPPER UNF.TOT.	ACTUAL	0.026	0.076	0.072	0.091	0.05	0.028	0.019	0.021	0.046	0.033	0.018	0.007	0.041	
KG /DAY (CUUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
NICKEL UNF.TOT.	ACTUAL	0.013	0.097	0.034	0.084	0.083	0.06	0.05	0.053	0.067	0.036	0.037	0.036	0.054	
KG /DAY (NIUT)	REQUIREMENT	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0
RESIDUE PARTIC.	ACTUAL	0.836	1.208	0.258	0.459	0.768	0.557	0.412	0.323	0.474	0.935	0.396	0.434	0.588	
KG /DAY (RSP)	REQUIREMENT	2	4.53	3.87	4.13	4.11	3.14	3.71	3.23	3.71	3.3	2.58	3.26	3.46	0
ZINC UNF.TOT.	ACTUAL	0.029	0.058	0.049	0.047	0.052	0.04	0.06	0.059	0.065	0.044	0.034	0.009	0.046	
KG /DAY (ZNUT)	REQUIREMENT	0.067	0.151	0.129	0.138	0.137	0.105	0.124	0.108	0.124	0.11	0.086	0.109	0.115	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 95, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Stelco Inc.
& PLANT LOCATION: Hilton Works, Hamilton

IMIS NO.: 0000950006

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron and steel production including coke making, ironmaking, steelmaking and rolling.

EFFLUENT CHARACTERISTICS: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery and ion exchange.

DISCHARGE TYPE: Continuous through five shore outfalls.

COMPANY LIMITS SET BY: MOE GUIDELINES: MOE guidelines set on total plant discharge.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: In May 1990 process effluents from #3 pickle line and acid regeneration plant were diverted to east side filtration plant for treatment.

COMMENTS: In compliance since May 1990.

The data for five of six trout bioassays submitted to MOE under the MISA monitoring regulation indicated the West Side Open Cut effluent to have been not acutely lethal to test fish. The remaining sample resulted in a 96 hour LC50 > 100 % effluent.

The data for five of six trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Northwest Outfall effluent to have been not acutely lethal to test fish. The remaining sample resulted in a 96 hour LC50 > 100 % effluent. An audit sample tested by the MOE was determined not acutely lethal.

The data for eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated the North Outfall effluent to have been not acutely lethal to test fish.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the East Side Filter effluent to have been not acutely lethal to test fish.

COMPANY NAME: Stelco Inc. ...continued
& PLANT LOCATION: Hilton Works, Hamilton

IMISNO.: 0000950006

The data for five of ten trout bioassays submitted to MOE under the MISA monitoring regulation indicated the # 1 60 inch Sewer effluent to have been not acutely lethal to test fish. Two of the remaining samples resulted in a 96 hour LC50 > 100 % effluent and three were determined to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 54.4, 75.0 and 75.0 %. Two audit samples tested by the MOE were determined as not acutely lethal.

The data for seven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the # 2 Rod Mill effluent to have been not acutely lethal to test fish.

The data for three of four trout bioassays submitted to MOE under the MISA monitoring regulation indicated the 20 inch Mill effluent to have been not acutely lethal to test fish. The remaining sample had a measured 96 hour LC50 > 100 % effluent.

01/14/92

000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 23 JAN 92

S U M M A R Y FOR EMIS. TYPE: 31 COMBINED EFFLUENT DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200 0400 0601 0602 1100 1200

1990 MISA DATA

FLOW/LOAD

									ANNUAL	TOTAL
FLOW	ACTUAL	984854	894759	737462	932568	925133	946271	790917	432020	830498	
M3 /DAY (FTFLOW)	GUIDELINE									
PH	ACTUAL	7.27	7.50	7.73	7.84	8.01	8.07	8.03	8.16	7.82	
(PH)	GUIDELINE										0
CYANIDE AVAIL	ACTUAL	19	26.4	28.5	30.7	30.2	42.7	40.1	4.11	27.7	
KG /DAY (CCNAUR)	GUIDELINE	212	212	212	212	212	212	212	212	212	0
IRON UNF.TOT.	ACTUAL	950	1083	610	646	346	305	299	57	537	
KG /DAY (FEUT)	GUIDELINE	10550	10550	10550	10550	10550	10550	10550	10550	10550	0
NH3-N TOTAL	CALC	565	4313	511	564	579	552	137	35.8	907	
KG/DAY (NNHTFR)	GUIDELINE										
PHENOLS UNF-REAC	ACTUAL	12.8	13.8	16.7	5.8	5.6	4.0	3.4	1.7	7.97	
KG /DAY (PHNOL)	GUIDELINE	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	0
RESIDUE PARTIC.	ACTUAL	9115	8639	8615	6228	5407	5730	4609	2240	6323	
KG /DAY (RSP)	GUIDELINE	15900	15900	15900	15900	15900	15900	15900	15900	15900	0
SOLVENT EXTRACT.	ACTUAL	2544	1770	1515	1628	1734	1499	1135	594	1552	
KG /DAY (SOLEXT)	GUIDELINE	15900	15900	15900	15900	15900	15900	15900	15900	15900	0
ZINC UNF.TOT.	ACTUAL	80.6	55.7	31.1	46.8	68.2	57.6	41.1	15.4	49.6	
KG /DAY (ZNUT)	GUIDELINE	1055	1055	1055	1055	1055	1055	1055	1055	1055	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 56, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

COD, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION (NNHTFR REPLACES THE PREVIOUSLY REPORTED NNHTUR).

COMPANY DID NOT DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

CONTROL POINT 1200 (20" MILL DISCHARGE) SHUT DOWN MAY 1990. NO DISCHARGE AFTER APRIL 1990.

000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, WEST SIDE OPEN CUT — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	45874	45273	49304	53066	61823	65561	62241	58189					55166	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.08	8.26	8.29	8.32	8.13	8.15	8.15	8.27					8.21	
(PH)	GUIDELINE														
CYANIDE AVAIL	CALC	0.82	1.8	1.29	2.88	7.13	4.51	1.93	1.63					2.75	
KG /DAY (CCNAUR)	GUIDELINE														
NH3-N TOTAL	CALC	68.1	67.7	70.3	55.2	59.8	37.7	16.2	13.8					48.6	
KG/DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	CALC	0.927	0.746	0.619	0.457	0.668	0.473	0.388	0.747					0.628	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	CALC	523	642	471	458	514	425	497	401					491	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	198	94.9	121	72.6	97.5	95.3	86.5	94.7					108	
KG /DAY (SOLEXT)	GUIDELINE														
ZINC UNF.TOT.	CALC	2.08	2.03	2.64	3.49	4.3	3.9	1.56	1.96					2.75	
KG /DAY (ZNUT)	GUIDELINE														

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COD, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION (NNHTFR REPLACES THE PREVIOUSLY REPORTED NNHTUR).

COMPANY DID NOT DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92
CONTROL POINT: 0200, NORTHWEST DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	238120	231750	140320	225140	207458	207690	123767	33468					175964	
	GUIDELINE														
PH (PH)	ACTUAL	8.06	8.04	8.31	8.22	8.14	8.12	8.1	8.23					8.15	
	GUIDELINE														
CYANIDE AVAIL KG /DAY (CCNAUR)	CALC	5.39	6.4	11.8	6.61	7.7	15.1	28	0.473					10.2	
	GUIDELINE														
NH3-N TOTAL KG/DAY (NNHTFR)	CALC	243	307	249	237	212	143	56	7.52					182	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	3.53	1.58	7.47	1.43	1.45	1.29	0.909	0.148					2.23	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	2825	2288	2364	1907	1490	1588	964	227					1707	
	GUIDELINE														
SOLVENT EXTRACT. KG /DAY (SOLEXT)	CALC	546	302	131	459	352	278	129	38.2					279	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC	22.1	14.9	5.83	8.1	13.5	8.9	14.9	0.809					11.1	
	GUIDELINE														

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000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92
CONTROL POINT: 0400, NORTH DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	234771	162621	160832	172227	151210	151247	154674	131377					164870	
	GUIDELINE														
PH (PH)	ACTUAL	8.11	8.12	8.17	8.2	8.16	8.1	8.05	8.14					8.13	
	GUIDELINE														
IRON UNF.TOT. KG /DAY (FEUT)	CALC	143	70.8	81.6	64.2	41.5	45.9	73.7	26.3					68.4	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	1756	1072	2084	1204	954	942	1083	755					1231	
	GUIDELINE														
SOLVENT EXTRACT. KG /DAY (SOLEXT)	CALC	448	256	316	276	245	233	180	141					262	
	GUIDELINE														

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COD, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION (NNHTFR REPLACES THE PREVIOUSLY REPORTED NNHTUR).

COMPANY DID NOT DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92

CONTROL POINT: 0601, EAST SIDE FILTER — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	409016	399025	331929	408017	439097	448987	389019	202059					378394	
	GUIDELINE														
PH (PH)	ACTUAL	7.82	7.78	7.83	7.86	7.8	7.88	7.84	8					7.85	
	GUIDELINE														
CYANIDE AVAIL. KG/DAY (CCNAUR)	CALC	12.8	18.2	15.4	21.2	15.4	23.1	10.2	2.01					14.8	
	GUIDELINE														
IRON UNF.TOT. KG /DAY (FEUT)	CALC	553	910	400	342	267	241	209	29.6					369	
	GUIDELINE														
NH3-N TOTAL KG/DAY (NNHTFR)	CALC	322	4006	262	327	367	409	80.8	28.3					275	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	CALC	8.33	11.5	8.63	3.94	3.46	2.24	2.07	0.767					5.12	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	CALC	3616	4157	3185	2134	2047	2424	1647	820					2504	
	GUIDELINE														
SOLVENT EXTRACT. KG /DAY (SOLEXT)	CALC	1233	1019	867	725	913	818	642	311					816	
	GUIDELINE														
ZINC UNF.TOT. KG /DAY (ZNUT)	CALC	28.2	19.4	11.3	17.6	25.2	22.4	12.3	6.34					17.8	
	GUIDELINE														

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COD, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION (NNHTFR REPLACES THE PREVIOUSLY REPORTED NNHTUR).

COMPANY DID NOT DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92
CONTROL POINT: 0602, #1 60" SEWER DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	27346	28317	31834	43888	36331	42492	34468	6927					31450	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	4.26	5.31	6.07	6.58	7.81	8.09	8	8.14					6.78	
(PH)	GUIDELINE														
IRON UNF.TOT.	CALC	254	102	128	240	37.7	18.3	16.7	0.869					100	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	159	256	330	323	248	220	276	36.7					231	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	64.5	56.3	46.8	55	82.1	40.8	56.6	8.74					51.4	
KG /DAY (SOLEXT)	GUIDELINE														

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000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92
CONTROL POINT: 1100, #2 ROD MILL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	24903	24573	20764	27458	29214	30294	26748						26279	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	CALC	156	175	140	172	154	131	142						153	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	35.9	28	25.8	32	43.9	33.7	41						34.3	

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000095-00-0(6) STELCO STEEL HILTON WORKS — HAMILTON — REPORT DATE: 23 JAN 92
CONTROL POINT: 1200, 20" MILL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4824	3200	2479	2772									3319	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	CALC	79.5	48.8	41.2	30.3									50	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	18.1	13.7	7.44	7.91									11.8	
KG /DAY (SOLEXT)	GUIDELINE														

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COMPANY DID NOT DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

CONTROL POINT 1200 (20" MILL DISCHARGE) SHUT DOWN MAY 1990. NO DISCHARGE AFTER APRIL 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Stelco Inc.
& PLANT LOCATION: Lake Erie Works, Nanticoke

IMIS NO.: 0000950105

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Centre Creek
INDIRECT: 0.15 km to Lake Erie

DESCRIPTION OF ACTIVITY: Coke ovens with a by-product plant, blast furnace, basic oxygen furnace and a hot strip mill are used to make steel.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: final wastewater treatment consisting of equalization, clarification, alkaline breakpoint chlorination, filtration and final holding pond.

DISCHARGE TYPE: Continuous through an open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (Dec.1987): Requirement for process effluent set by Certificate of Approval. Revised December/87.

EXCEEDANCES: Suspended Solids (RSP) (1)

REMEDIAL ACTIONS: None required. Company in compliance since October 1990.

COMMENTS: Elevated suspended solids in October believed to have been caused by soil erosion from heavy rainfalls. Most of mill was shut down as a result of a strike when elevated levels occurred.

The data for twelve of thirteen trout bioassays submitted to MOE under the MISA monitoring regulation indicated the # 4 Pond Discharge effluent to have been not acutely lethal to test fish. The remaining sample had a measured 96 hour LC50 > 100 % effluent. Two audit samples tested by the MOE were also determined non-lethal.

04/22/92

000095-01-0(5) STELCO STEEL, LAKE ERIE WORKS — NANTICOKE — REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, #4 POND DISCHARGE — 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	34099	34466	35244	37574	35655	35000	35667	31343	31640	31113	30232	33521	33796	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.21	8.47	8.6	8.5	8.86	8.56	8.63	8.85	8.8	8.1	8.18	8.32	8.51	
(PH)	GUIDELINE														0
CYANIDE AVAIL	ACTUAL	1.9	1.42	1.87	1.8	1.3	1.1	0.94	0.871	0.633	0.916	0.95	4.1	1.48	
KG /DAY (CCNAUR)	GUIDELINE														
CYANIDE FREE	ACTUAL	1.7	1.9	1.76	1.9	1.8	1.8	1.8	1.45	1.58	1.53	1.53	1.9	1.72	
KG /DAY (CCNFUR)	REQUIREMENT	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	0
CADMIUM UNF.TOT.	ACTUAL	0.07	0.097	0.7	0.07	0.6	0.07	0.11					0.07	0.223	
KG /DAY (CDUT)	GUIDELINE														
CHLORINE FREE	ACTUAL	3.4	3.4	3.52	3.8	3.6	3.5	0.36	2.9	3.16	3.05	3.1	3.4	3.1	
KG /DAY (CLFREE)	REQUIREMENT	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	0
CHROMIUM UNF.TOT.	ACTUAL	0.31	0.34	0.3	0.23	0.21	0.21	0.18	0.14	0.127	0.267	0.322	0.38	0.251	
KG /DAY (CRUT)	REQUIREMENT	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	
COPPER UNF.TOT.	ACTUAL	0.48	0.43	0.31	0.23	0.21	0.1	0.29	0.2	0.127	0.166	0.199	0.39	0.261	
KG /DAY (CUUT)	REQUIREMENT	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	0
IRON UNF.TOT.	ACTUAL	17	15.6	18.1	15.9	10.2	9.9	6.3	20	26.1	27.6	19.1	34.9	18.4	
KG /DAY (FEUT)	REQUIREMENT	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	0
LEAD UNF.TOT.	ACTUAL	0.2	0.21	0.21	0.26	0.21	0.46	0.22	1.8	0.949	2.03	3.2	0.38	0.844	
KG /DAY (PBUT)	REQUIREMENT	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	0
PHENOLS UNF-REAC	ACTUAL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.046	0.06	0.061	0.2	0.2	0.164	
KG /DAY (PHNOL)	GUIDELINE	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.750	0
PHOSPHOR UNF.TOT.	ACTUAL	4	2.76	2.82	4.4	4.3	9.1	6.6	7.8	8.23	22.8	19.4	22	9.52	
KG /DAY (PPUT)	REQUIREMENT	37	37	37	37	37	37	37	37	37	37	37	37	37	0
RESIDUE PARTIC.	ACTUAL	241	265	268	327	319	197	178	162	475	873	281	421	334	
KG /DAY (RSP)	REQUIREMENT	566	566	566	566	566	566	566	566	566	566	566	566	566	1
SOLVENT EXTRACT.	ACTUAL	44	38.9	39.8	43.6	39	44	49	47.1	31.6	45.8	22	44	40.7	
KG /DAY (SOLEXT)	REQUIREMENT	238	238	238	238	238	238	238	238	238	238	238	238	238	0
ZINC UNF.TOT.	ACTUAL	4.1	1.4	2.14	2.6	0.89	0.91	0.55	1.5	10.8	2.63	8.56	3	3.26	
KG /DAY (ZNUT)	REQUIREMENT	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	0

NOTE: PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 132, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Stelco Inc.
& PLANT LOCATION: Page Hersey Works, Welland

IMIS NO.: 0000950303

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating & Finishing

SIC CODE: 292

RECEIVING WATERBODY: DIRECT: Welland Canal
INDIRECT:

DESCRIPTION OF ACTIVITY: Small diameter seamless pipe is made from steel billets.

EFFLUENT CHARACTERISTICS: Contains iron particles, Total suspended solids and oil and grease.

EFFLUENT TREATMENT: Process wastewater is discharged to a multi-media filtration system.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

04/22/92

000095-03-0(3) STELCO PAGE HERSHEY — WELLAND — REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, — 1990 DATA (GROSS)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	15100	15500	15800	14300	15100	14700	15100	14700	8264	10029	9844	9195	13136	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.55	7.58	7.63	7.96	7.7	7.66	7.7	7.48	7.61	7.69	7.67	7.5	7.64	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	86.1	61.2	89	42.6	36.2	67.6	21.1	22.1	10.7	14	12.8	11	39.5	
KG/DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	46.8	36.1	26.9	114	125	70.6	40	88.2	57.8	68.2	44.3	40.5	63.3	
KG/DAY (SOLEXT)	GUIDELINE	227	233	237	215	227	221	227	221	124	150	148	138	197	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Stelco Inc.
& PLANT LOCATION: Welland Tube Works, Welland

IMIS NO.: 0000950204

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating & Finishing

SIC CODE: 292

RECEIVING WATERBODY: DIRECT: Lyons Creek to Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Flat steel is made into very large diameter pipe.

EFFLUENT CHARACTERISTICS: Contains iron particles, Total suspended solids and oil and grease

EFFLUENT TREATMENT: Oil water separation and primary treatment.

DISCHARGE TYPE: Continuous through an open outfall.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

04/22/92

000095-02-0(4) STELCO WELLAND TUBES
CONTROL POINT: 0100, WELLAND
FLOW/LOADING PARAMETERS — 1990 DATA (NET DATA)

REPORT DATE: 14 FEB 92

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	709	1151	1435	504	534	355	794	1211	985	321	0	1151	762	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.37	7.49	7.36	8.5	7.08	7.42	7.6	7.53	7.66	7.79		8.1	7.63	
(PH)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	0.25	0.12	0.65	0.15	0.47	0.06	0.08	0.85	0.62	0.44		0.94	0.421	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	2.95	3.34	9.61	1.16	3.04	4.35	5.48	8.84	4.33	6.03		11.5	5.51	
KG /DAY (RSP)	GUIDELINE	10.6	17.3	21.5	7.56	8.01	5.32	11.9	18.2	14.8	4.8		17.3	12.5	0
SOLVENT EXTRACT.	ACTUAL	6.56	6.33	6.89	3.78	5.34	1.29	2.78	8.36	6.5	4.87		7.89	5.51	
KG /DAY (SOLEXT)	GUIDELINE	10.6	17.3	21.5	7.56	8.01	5.32	11.9	18.2	14.8	4.8		17.3	12.5	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME & PLANT LOCATION: Stepan Canada Inc. (previously reported as Domtar Chemicals Group) Longford Mills — IMISNO.:0000140004

MOE REGION: Central — DISTRICT: Barrie

INDUSTRIAL SECTOR: Organic Chemicals — SIC CODE: 3761

RECEIVING WATERBODY: DIRECT: Lake St. John
INDIRECT: Georgian Bay

DESCRIPTION OF ACTIVITY: Produces detergents and detergent bases from ethylene oxide, fatty acids, ethylamines, etc.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge.

DISCHARGE TYPE: Continuous - treated wastewaters are joined by clean cooling water prior to discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-0189-90-916

Residual Filtered Solids (RSF)	15.0 mg/L	
Total Organic Carbon (TOC)	15.0 mg/L	
Total Phosphorous	1.0 mg/L	
pH	6.5 - 9.0	(not to exceed this pH range for any period more than 30 minutes)

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Control point 0100 is an intermediate control point and will therefore not be included in this report. This company is subject to MISA, Organic Chemical Manufacturing Sector.

The data for eight trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Combined effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined not acutely lethal.

04/22/92

000014-00-0(4) STEPAN CANADA INC., LONGFORD MILLS — LONGFORD MILLS — REPORT DATE: 22 NOV 91

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2076	2581	2464	2416	2638	2667	2279	2094	2711	2546	2285	1819	2381	
M3 /DAY (FTFLOW)	GUIDELINE														
MET BLUE ACT.SUB	ACTUAL	0	0	0	0	0.4	0	0	0	0	0	0	0	0.033	
MG/L AS LAS	GUIDELINE														
NH3-N TOTAL	ACTUAL	0.2	0.3	0.2	0.4	0.5	0.4	0.4	0.2	0.1	0.3	0.4	0.3	0.308	
MG/L AS N (NNHTUR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
NO3-N UNF.REAC	ACTUAL	0	0.05	0.2	0.3	0.3	0.3	0.2	0.5	0.2	0.3	0.3	0.3	0.246	
MG/L AS N (NNO3UR)	GUIDELINE														
PH	ACTUAL	7.5	7.3	7.2	7.1	7.3	7.6	7.5	7.8	7.5	7.2	7.7	7.2	7.41	
(PH)	REQUIREMENT														0
PHENOLS UNF-REAC	ACTUAL		0.002	0.001	0	0	0	0.01	0	0	0.0002	0	0	0.001	
MG/L PHENOL	GUIDELINE		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0
PHOSPHOR UNF.TOT.	ACTUAL	0.03	0.02	0.04	0.09	0.03	0.05	0.04	0.05	0.06	0.04	0.01	0.02	0.04	
MG/L AS P (PPUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE FILTERED	ACTUAL	4	4	5	4	5	5	4	7	7	6	7	4	5.17	
MG/L (RSF)	REQUIREMENT	15	15	15	15	15	15	15	15	15	15	15	15	15	0
CARBON TOTAL	ACTUAL	7.7	10.7	7.8	9.1	11.6	10.4	9.2	9.5	10.7	10.7	12.5	12	10.2	
MG/L AS C (TOC)	REQUIREMENT	15	15	15	15	15	15	15	15	15	15	15	15	15	0

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 71, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000014-00-0(4) STEPAN CANADA INC., LONGFORD MILLS — LONGFORD MILLS — REPORT DATE: 07 JAN 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	2283	2581	2475	2486	2562	2675	2279	2257	2722	2518	2270	1833	2412	
	GUIDELINE														
PH DAILY (PHAVG)	ACTUAL	7.54	7.28	7.15	7.07	7.38	7.51	7.49	7.87	7.4	7.22	7.68	7.47	7.42	
	REQUIREMENT														
NH3-N TOTAL KG /DAY (NNHTUR)	CALC										0.75	0.673	0.686	0.703	
	GUIDELINE														
PHENOLS UNF. TOT. KG/ DAY (PHNOL)	CALC		0.003	0.014	0.006	0.005	0.006	0.004	0.005	0.009	0.005	0.005	0.004	0.006	
	GUIDELINE														
PHOSPHOR UNF. TOT. KG/DAY (PPUT)	CALC	0.212	0.238	0.262	0.318	0.271	0.258	0.225	0.206	0.224	0.26	0.229	0.194	0.241	
	GUIDELINE														
RESIDUE PARTIC. KG/DAY (RSP)	CALC	9.22	10.5	10.1	9	12.2	11.3	10.8	13.4	16.5				11.4	
	GUIDELINE														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Strathcona Paper Company (Div. of Roman Corp. Ltd.) Camden East Twp.

IMISNO.: 0001740000

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Napanee River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is cleaned and repulped to form coated paperboards.

EFFLUENT CHARACTERISTICS: Effluent contains suspended solids and biodegradable organics.

EFFLUENT TREATMENT: Internal treatment system consists of; whitewater recycle utilizing savealls and a Krofta clarifier. External treatment system is an aerated and facultative lagoon system.

DISCHARGE TYPE: One continuous submerged outfall from lagoon system (control point 0200).

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Permitted BOD loadings is a function of Napanee River flows as detailed on Certificate of Approval #4-024-86-876 dated May 28, 1987. Provincial guideline for phosphorus is 1.0 mg/L monthly average concentration.

MOE OR FEDERAL GUIDELINES: Suspended solids guideline based on Federal Pulp and Paper Effluent Guidelines indicating an average monthly production of approximately 217 tonnes/day and an allowable suspended solids (RSP) of 7.5 kg/tonne of production, the 1990 allowable was 1627.5 kg/day.

EXCEEDANCES: Biochemical Oxygen Demand (BOD5) (3)

REMEDIAL ACTIONS: Additional aeration was installed in June 1990 resulting in compliance of BOD5 limit for winter months of 1991.

COMMENTS: The data for seven of eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Lagoon # 7 to River effluent to have been not acutely lethal to test fish. However, the four remaining samples were determined to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days of exposure ranged from 39.0 - 80.6 %. An audit sample tested by the MOE was determined acutely lethal with a 96 hour LC50 0f 24.5 % effluent.

04/22/92

000174-00-0(0) STRATHCONA PAPER COMPANY — NAPANEE — REPORT DATE: 08 OCT 91

CONTROL POINT: 0200, 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3505	3655	3884	4488	3928	3734	2839	2560	2938	2760	2766	2743	3317	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	515	814	1092	854	314	180	137	66.4	84.6	104	166	239	381	
KG /DAY (BOD5)	REQUIREMENT	613	613	613	613	613	204	204	204	204	204	613	613	443	3
CHEM. OX DEMAND	ACTUAL	1886	2339	2853	2971	1496	1206	888	538	620	770	1250	1605	1535	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.927	1.58	2.28	1.7	2.03	2.05	2	1.27	1.57	1.39	1.61	1.5	1.66	
KG /DAY (PPUT)	GUIDELINE	3.4	3.68	3.99	4.28	3.97	3.78	2.8	2.64	2.9	2.78	2.76	2.72	3.31	0
RESIDUE PARTIC.	ACTUAL	132	170	226	310	285	303	170	92.6	124	162	251	330	213	
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C - SEE COMMENTS

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 91.7 % IN 1990.

EFFLUENT FROM CONTROL POINT 0200 (MISA), PREVIOUSLY REPORTED AS CONTROL POINT 0100 (IMIS).

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Suncor, Sunoco Group Sarnia

IMISNO.: 0000490102

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation before discharge. Process and contaminated storm water receive both primary and secondary treatment before discharge.

DISCHARGE TYPE: Continuous at shore.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: NH3-N (1)

REMEDIAL ACTIONS: The exceedance of the ammonia guideline in October was due to mechanical problems at the sour water/ammonia stripper, during start-up of Plant #1. To correct the problem, the company has modified the sour water/ammonia stripping system (C. of A. 4-074-85-866). Modifications completed in March, 1991.

COMMENTS: This company has converted to MISA monitoring and 'gross' loadings and should not be compared to the 'net' loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings.

01/08/91

000049-01-0(2) SUNCOR INC. (SUNOCO DIVISION) PO BOX 307 SARNIA REPORT DATE: 28 JAN 92

S U M M A R Y INCLUDES CONTROL POINTS 0300 0400

1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	95992	91106	85488	97366	102565	104735	112496	96401	113649	125814	121971	108257	104653	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.55	7.71	7.66	7.69	7.86	7.73	7.57	6.74	7.71	7.68	7.25	7.53	7.55	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	3.55	18.6	3.3	12.8	4.47	4.77	3.12	10.3	1.46	73.6	49.9	12.7	16.5	
KG /DAY (NNHTFR)	GUIDELINE	98.6	93.4	94.8	93.2	84.8	86.9	83.6	74.4	55.9	60.2	83.8	81	82.6	1
PHENOLS UNF-REAC	CALC	0.164	0.178	0.15	0.152	1.96	0.189	0.178	0.516	0.157	0.176	0.228	0.182	0.353	
KG /DAY (PHNOL)	GUIDELINE	1.92	1.82	1.71	1.95	2.05	2.09	2.25	1.93	2.27	2.52	2.44	2.17	2.093	0
RESIDUE PARTIC.	CALC	271	607	140	2440	151	241	556	670	349	386	621	349	565	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	55.4	43.6	37.4	41.3	44.8	43.2	48.1	43.1	47.7	54.1	56.6	48.5	47	
KG /DAY (SOLEXT)	GUIDELINE	1443	1364	1282	1465	1538	1570	1686	1450	1705	1886	1827	1624	1570	0
SULPHIDE UNF.REAC	CALC	17.5	0.91	0.868	1.93	28.4	1.06	1.17	0.97	1.16	3.74	1.27	1.14	5.01	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	220	264	222	275	296	316	367	211	270	298	311	209	272	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 97.9% IN 1990.

000049-01-0(2) SUNCOR INC. (SUNOCO DIVISION) PO BOX 307 SARNIA

CONTROL POINT: 0300, 1990 MISA DATA

REPORT DATE: 28 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9182	9381	9263	9182	8555	8630	8579	7084	5650	5814	8521	8171	8168	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.42	7.41	7.48	7.52	7.35	7.44	6.88	7.61	7.05	6.89	7.25	7.31	
(PH)	GUIDELINE														0
NH3-N TOTAL	CALC	3.55	18.6	3.3	12.8	4.47	4.77	3.12	10.3	1.46	73.6	49.9	12.7	16.5	
KG /DAY (NNHTFR)	GUIDELINE	98.6	93.4	94.8	93.2	84.8	86.9	83.6	74.4	55.9	60.2	83.8	81.0	82.6	1
PHENOLS UNF-REAC	CALC	0.077	0.096	0.074	0.064	0.082	0.093	0.074	0.069	0.049	0.056	0.114	0.082	0.0775	
KG /DAY (PHNOL)	GUIDELINE	0.184	0.188	0.185	0.184	0.171	0.173	0.172	0.142	0.113	0.116	0.17	0.163	0.163	0
RESIDUE PARTIC.	CALC	97.1	117	63.7	55.8	56.9	49.3	36.2	44.6	24.6	25.7	53.6	48.6	56.1	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	12	10.9	6.92	5.99	7.16	4.84	6.54	7.35	4.53	6.07	11.2	8.47	7.66	
KG /DAY (SOLEXT)	GUIDELINE	141	138	139	142	128	128	127	110	85.0	86.0	125	123	123	0
SULPHIDE UNF.REAC	CALC	0.102	0.093	0.106	0.169	0.156	0.103	0.127	0.077	0.078	0.143	0.143	0.144	0.12	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	71.5	59.9	54.2	62.9	108	143	149	68	31.9	34.4	60.9	49.1	74.4	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 98 % IN 1990.

000049-01-0(2) SUNCOR INC. (SUNOCO DIVISION) PO BOX 307 SARNIA

CONTROL POINT: 0400, 1990 MISA DATA

REPORT DATE: 28 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	86810	81725	76225	88184	94010	96105	103917	89317	107999	120000	113450	100086	96486	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	8	7.9	7.9	8.2	8.1	7.7	6.6	7.8	8.3	7.6	7.8	7.8	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	CALC	0.087	0.082	0.076	0.088	1.88	0.096	0.104	0.447	0.108	0.12	0.114	0.1	0.275	
KG /DAY (PHNOL)	GUIDELINE	1.74	1.63	1.52	1.76	1.88	1.92	2.08	1.79	2.16	2.4	2.27	2	1.93	0
RESIDUE PARTIC.	CALC	174	490	76.2	2381	94	192	520	625	324	360	567	300	509	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	43.4	32.7	30.5	35.3	37.6	38.4	41.6	35.7	43.2	48	45.4	40	39.3	
KG /DAY (SOLEXT)	GUIDELINE	1302	1226	1143	1323	1410	1442	1559	1340	1620	1800	1702	1501	1447	0
SULPHIDE UNF.REAC	CALC	17.4	0.817	0.762	1.76	28.2	0.961	1.04	0.893	1.08	3.6	1.13	1	4.89	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	CALC	148	204	168	212	188	173	218	143	238	264	250	160	197	
KG /DAY (TOC)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY

COMPANY NAME: Teck-Corona Operating Corporation
& PLANT LOCATION: David Bell Mine, Marathon

IMIS NO.: 0031750003

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: Contains heavy metals, suspended solids, pH, cyanide

EFFLUENT TREATMENT: Hydrogen perioxide used for cyanide destruction followed by a metal precipitation stage utilizing ferric sulphate.

DISCHARGE TYPE: Continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Issued June 1985. Requirements set out under "Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981".

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for four trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final discharge effluent to have been not acutely lethal to test fish. An audit sample tested by MOE was also determined as non-lethal.

02/27/91

003175-00-0(3) TECK-CORONA OPERATING CORP., DAVID BELL MINE — MARATHON — REPORT DATE: 7 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT. MG/L (ASUT)	ACTUAL	0.003	0.002	0.002		0.006	0.008	0.006	0.005	0.005	0.005	0.005	0.005	0.005	
	GUIDELINE	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE AVAIL MG/L (CCNAUR)	ACTUAL	0.626	0.825	0.23		0.207	0.021	0.016	0.02	0.064	0.049	0.156	0.057	0.206	
	GUIDELINE														
COPPER UNF.TOT. MG/L (CUUT)	ACTUAL	0.026	0.008	0.018		0.011	0.005	0.006	0.01	0.005	0.005	0.01	0.05	0.014	
	GUIDELINE	1	1	1		1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT. MG/L (FEUT)	ACTUAL	0.32	0.21	0.14		0.146	0.05	0.1	0.11	0.09	0.17	0.21	0.2	0.159	
	GUIDELINE	1	1	1		1	1	1	1	1	1	1	1	1	0
MERCURY UNF.TOT. MG/L (HGUT)	ACTUAL	0.12	0.153	0.006		0.115	0.85	0.06	0.05	0.06	0.06	0.06	0.056	0.145	
	GUIDELINE														
MOLYBDEN UNF.TOT. MG/L (MOUT)	ACTUAL	0.108	0.115	0.21		0.15	0.2	0.228	0.24	0.277	0.25	0.15	0.31	0.203	
	GUIDELINE														
PH (PH)	ACTUAL	7.12	7.38	7.43		7.25	7.37	7.38	7.67	7.58	7.39	7.33	7.32	7.38	
	GUIDELINE														0
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	1.88	1.05	1		1.15	1	1	1	2.1	1.5	1.07	1.08	1.26	
	GUIDELINE														
ANTIMONY UNF.TOT. MG/L (SBUT)	ACTUAL	0.228	0.282	0.31		0.31	0.255	0.498	0.266	0.25	0.357	0.383	0.36	0.318	
	GUIDELINE														
ZINC UNF.TOT. MG/L (ZNUT)	ACTUAL	0.005	0.008	0.005		0.005	0.005	0.006	0.005	0.005	0.016	0.007	0.007	0.007	
	GUIDELINE	1	1	1		1	1	1	1	1	1	1	1	1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

003175-00-0(3) TECK-CORONA OPERATING CORP., DAVID BELL MINE MARATHON REPORT DATE: 10 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		2444	1771		2567	2421	2514	2497	2466	2358	2049	2843	2393	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.46	7.45		7.25	7.34	7.42	7.57	7.56	7.4	7.42	7.52	7.44	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	CALC		0.011	0.011		0.013	0.013	0.013	0.004	0.004	0.004	0.003	0.004	0.008	
KG /DAY (ASUT)	REQUIREMENT														
CYANIDE AVAIL	CALC		0.714	0.986		0.537	0.05	0.046	0.075	0.186	0.092	0.257	0.162	0.311	
KG /DAY (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	CALC		0.156	0.316		0.02	0.012	0.01	0.036	0.015	0.015	0.02	0.03	0.063	
KG /DAY (CUUT)	REQUIREMENT														
IRON UNF.TOT.	CALC		0.336			0.331	0.077	0.049		0.074		0.199	0.547	0.23	
KG /DAY (FEUT)	REQUIREMENT														
MERCURY UNF.TOT.	CALC		0.00384			0.000028	0.00001	0.000025		0.00254		0.000014	0.000033	0.000927	
KG /DAY (HGUT)	GUIDELINE														
MOLYBDEN UNF.TOT.	CALC					0.414		0.197		0.382			0.795	0.447	
KG /DAY (MOUT)	GUIDELINE														
RESIDUE PARTIC.	CALC		1.97	1.2		2.05	1.8	1.84	2.15	4.03	2.5	4.51	2.29	2.43	
KG /DAY (RSP)	GUIDELINE														
ANTIMONY UNF.TOT.	CALC					0.966		1.3		0.366			1.24	0.968	
KG /DAY (SBUT)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.02	0.012		0.019	0.017	0.02	0.022	0.017	0.022	0.022	0.017	0.0188	
KG /DAY (ZNUT)	REQUIREMENT														

****

THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Tend-R-Fresh (Div. of Maple Leaf Mills Poultry Products) (previously reported as Sherwood Poultry Farms) Dundas/Flamborough Twp.

IMIS NO.: 0093240000

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1010

RECEIVING WATERBODY: DIRECT: Spencer Creek to Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Chicken processing plant.

EFFLUENT CHARACTERISTICS: Animal fats, manure, blood (ammonia, suspended solids, phosphorus, BOD, solvent extractables).

EFFLUENT TREATMENT: Current dissolved air flotation, extended aeration, chemical treatment, and lagoons completed in September 1990.

DISCHARGE TYPE: Seasonal discharge.

COMPANY LIMITS SET BY: MOE GUIDELINES: Seasonal discharge in proportion to flow in receiving stream.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: Installation of dissolved air flotation unit completed in September, 1990. Treatment of lagoon with alum prior to seasonal discharge.

01/14/92

009324-00-0(0) TEND-R-FRESH DIVISION — DUNDAS/FLAMBOROUGH — REPORT DATE: 14 FEB 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		2700		725	933					722		1623	1341	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL		16.2		4.35	6.53					10		16	10.6	
KG /DAY (BOD5)	GUIDELINE		40.5		10.9	14					10.8		24.3	20.1	0
NH3-N UNF.REAC	ACTUAL		6.21											6.21	
KG /DAY (NNH3UR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL		0.891		0.058	0.7					0.22		0.38	0.45	
KG /DAY (PPUT)	GUIDELINE		2.7		0.725	0.933					0.722		1.62	1.34	0
RESIDUE PARTIC.	ACTUAL		27		5.8	9.8					1.87		4.3	9.8	
KG /DAY (RSP)	GUIDELINE		40.5		10.9	14					10.8		24.3	20.1	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 15, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: The Algoma Steel Corp. Ltd. Algoma Ore Division, Wawa

IMISNO.: 0000040105

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Magpie River
INDIRECT: 10 km to Lake Superior

DESCRIPTION OF ACTIVITY: Sulphur bearing iron ore is roasted to make iron sinter.

EFFLUENT CHARACTERISTICS: Contains suspended solids and dissolved metal sulphates.

EFFLUENT TREATMENT: Tailings pond system (3 ponds) in series.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Suspended Solids (RSP) (2)

REMEDIAL ACTIONS: The company has undertaken an upgrading program of the tailings management system which was completed in 1991.

COMMENTS: The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1990, indicated the final decant effluent to have been not acutely lethal to test fish. An audit sample conducted by MOE was also non-lethal.

12/16/91

000004-01-0(5) THE ALGOMA STEEL CORPORATION, LIMITED WAWA REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, FINAL DISCHARGE 1990 DATA
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ALK TOTAL	ACTUAL	52												52	
MG/L AS CACO3	GUIDELINE	100												100	0
COPPER UNF.TOT.	ACTUAL	< 0.01												< 0.01	
MG/L AS CU	GUIDELINE	S/C													S/C
IRON UNF.TOT.	ACTUAL	0.54												0.54	
MG/L AS FE	GUIDELINE	1												1	0
MANGANSE UNF.TOT.	ACTUAL	0.04												0.04	
MG/L AS MN	GUIDELINE	1												1	0
NICKEL UNF.TOT.	ACTUAL														
MG/L AS NI	GUIDELINE														
PH	ACTUAL	10												10	
(PH)	GUIDELINE														0
RESIDUE FILTERED	ACTUAL	647												647	
MG/L (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	28.4												28.4	
MG/L (RSP)	GUIDELINE	15												15	1
SULPHATE UNF.REAC	ACTUAL	270												270	
MG/L AS SO4	GUIDELINE	750												750	0
ZINC UNF.TOT.	ACTUAL	0.03												0.03	
MG/L AS ZN	GUIDELINE	S/C													S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.5 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 8, FOR A TOTAL COMPLIANCE RECORD OF 87.5 % IN 1990.

NO DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

THIS COMPANY BEGAN REPORTING DATA UNDER THE MISA MONITORING REGULATION PROGRAM FEBRUARY 1990.

000004-01-0(5) THE ALGOMA STEEL CORPORATION, LIMITED WAWA REPORT DATE: 09 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		9301	10961	10233	8546	9342	9397						9630	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		10.2	9.89	9.62	7.91	7.5	7.09						8.71	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	CALC		0.0953	0.102	0.124	0.0576	0.0613	0.0821						0.0871	
KG /DAY (CUUT)	GUIDELINE		S/C	S/C	S/C	S/C	S/C	S/C							S/C
IRON UNF.TOT.	CALC		5.79	9.28	7.17	8.16	6.37	5.75						7.09	
KG /DAY (FEUT)	GUIDELINE		9.3	11	10.2	8.55	9.34	9.4						9.63	0
NICKEL UNF.TOT.	CALC		0.191	0.204	0.248	0.115	0.143	0.164						0.178	
KG /DAY (NIUT)	GUIDELINE		S/C	S/C	S/C	S/C	S/C	S/C							S/C
LEAD UNF.TOT.	CALC		0.0191	0.0204	0.0248	0.0115	0.0204	0.0164						0.0188	
KG /DAY (PBUT)	GUIDELINE		S/C	S/C	S/C	S/C	S/C	S/C							S/C
RESIDUE FILTERED	CALC		6864	6543	9289	5238	8690	7385						7335	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	CALC		140	186	92.5	23.5	32.4	30.2						84.1	
KG /DAY (RSP)	GUIDELINE		140	164	153	131	140	141						145	1
SULPHATE UNF.REAC	CALC		3260	3405	5326	257	4703	4021						3495	
KG /DAY (SSO4UR)	GUIDELINE														
ZINC UNF.TOT.	CALC		0.0477	0.0511	0.0619	0.0288	0.245	0.107						0.0903	
KG /DAY (ZNUT)	GUIDELINE		S/C	S/C	S/C	S/C	S/C	S/C							S/C

NOTE: S/C - SEE COMMENTS, PH-LIMITS 5.5 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 42, FOR A TOTAL COMPLIANCE RECORD OF 97.6 % IN 1990.

NO DISCHARGE DURING AUGUST TO DECEMBER 1990 DUE TO STRIKE.

THIS COMPANY BEGAN REPORTING DATA UNDER THE MISA MONITORING REGULATION PROGRAM FEBRUARY 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: The Canadian Salt Company Ltd. Windsor

IMISNO.:0001040005

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0793

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Salt is mined and prepared for use.

EFFLUENT CHARACTERISTICS: Contains dissolved salt (chlorides).

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharge in Ontario (Provincial)

EXCEEDANCES: Suspended Solids (RSP) (3)

REMEDIAL ACTIONS: The two discharge points were combined into one in 1991. The company is planning to redirect its stormwater runoff, which will decrease suspended solids loadings discharged.

COMMENTS: Compliance is assessed against total plant discharge.

The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation indicated the E1-Main Sewer effluent to have been not acutely lethal to test fish. The remaining sample had a measured 96 hour LC50 > 100 % effluent.

01/08/91

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 24 JAN 92

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0100 0200 - 1990 DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	20111												20111	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.85												7.85	
(PH)	GUIDELINE														0
ALK TOTAL	ACTUAL	8												8	
KG /DAY (ALKT)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	16922												16922	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	27706												27706	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	93												93	
KG /DAY (RSP)	GUIDELINE	302												302	0
RESIDUE TOTAL	ACTUAL	27799												27799	
KG /DAY (RST)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 2, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 06 MAR 92

CONTROL POINT: 0100, 1990 MISA DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		15301	1208	1503	1771	1290	981	14008	16611	23549	18534	23969	10793	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.22	8.09	8.05	7.99	8.06	8.12	8.08	8.04	7.86	7.92	7.87	8.03	
(PH)	GUIDELINE														0
CHLORIDE UNF.REAC	CALC		7370	618	1678	4852	1965	398	5603	10082	7914	11480	14579	6049	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE FILTERED	CALC		1244	1121		2071	7336	244	7452	4428		39422	32906	10692	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	CALC		152	10.7	16.3	26.6	12.9	11.9	213	238	359	276	805	193	
KG /DAY (RSP)	GUIDELINE		230	18.1	22.5	26.6	19.4	14.7	210	249	353	278	360	162	3

NOTE: PH-LIMITS 5.50 - 10.6

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 86.4% IN 1990.

ALKT AND RST ARE NOT MONITORED UNDER MISA MONITORING REGULATION.

CONTROL POINT 0100 (MISA), REPRESENTS THE COMBINED EFFLUENT FROM THE PREVIOUSLY REPORTED CONTROL POINTS 0100 AND 0200 (IMIS).

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 24 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2044												2044	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8												8	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	8												8	
KG /DAY (ALKT)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	13887												13887	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	22864												22864	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	57												57	
KG /DAY (RSP)	GUIDELINE														
RESIDUE TOTAL	ACTUAL	22921												22921	
KG /DAY (RST)	GUIDELINE														

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 24 JAN 92
CONTROL POINT: 0200, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	18067												18067	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7												7.7	
(PH)	REQUIREMENT														
CHLORIDE UNF.REAC	ACTUAL	3035												3035	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	4842												4842	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	36												36	
KG /DAY (RSP)	GUIDELINE														
RESIDUE TOTAL	ACTUAL	4878												4878	
KG /DAY (RST)	GUIDELINE														

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Valeo Engine Cooling Ltd. (previously reported as Blackstone Products) Stratford

IMIS NO.: 0001850007

MOE REGION: Southwest

DISTRICT: London

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 325

RECEIVING WATERBODY: DIRECT: Avon River (via Burritt Drain)
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacture of automotive radiators and heater cores.

EFFLUENT CHARACTERISTICS: Contains dissolved metals including copper, zinc and nickel.

EFFLUENT TREATMENT: pH adjustment and filtration.

DISCHARGE TYPE: Both Batch and continuous operations.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Suspended Solids (RSP) (3), Zinc (6).

REMEDIAL ACTIONS: Ministry staff met with company officials to determine what measures must be taken to reduce effluent parameter concentrations to levels, which would meet current effluent discharge criteria. In March, 1990 the company submitted an action plan, which included an in-house Investigative at source reduction programme. Operational modifications were implemented and continued through 1991. Full yearly compliance is anticipated in 1993.

COMMENTS:

01/08/91

000185-00-0(7) VALEO ENGINE COOLING LTD — STRATFORD — REPORT DATE: 19 DEC 91

CONTROL POINT: 0100, — 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	612	769	865	921	956	841	892	898	915	918	916	715	852	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	8	8.2	8.2	8.2	8.2	8.1	8	7.9	7.7	7.7	7.6	7.98	
(PH)	REQUIREMENT														0
CHROMIUM UNF.TOT.	ACTUAL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
KG /DAY (CRUT)	GUIDELINE	0.612	0.769	0.865	0.921	0.956	0.841	0.892	0.898	0.915	0.918	0.916	0.715	0.852	0
COPPER UNF.TOT.	ACTUAL	0.09	0.1	0.11	0.15	0.13	0.01	0.27	0.1	0.16	0.2	0.09	0.06	0.123	
KG /DAY (CUUT)	GUIDELINE	0.612	0.769	0.865	0.921	0.956	0.841	0.892	0.898	0.915	0.918	0.916	0.715	0.852	0
LEAD UNF.TOT.	ACTUAL	0.16	0.15	0.1	0.13	0.11	0.08	0.16	0.08	0.16	0.19	0.12	0.13	0.131	
KG /DAY (PBUT)	REQUIREMENT	0.612	0.769	0.865	0.921	0.956	0.841	0.892	0.898	0.915	0.918	0.916	0.715	0.852	0
RESIDUE PARTIC.	ACTUAL	4.83	5.44	6.35	6.17	7.5	11.3	14.0	8.39	18	25.3	12.8	4.7	10.4	
KG /DAY (RSP)	GUIDELINE	9.18	11.5	13	13.8	14.3	12.6	13.4	13.5	13.7	13.8	13.7	10.7	12.8	3
ZINC UNF.TOT.	ACTUAL	0.92	0.95	6.35	0.7	0.75	1.42	1.95	0.66	0.81	1.18	0.65	0.49	1.4	
KG /DAY (ZNUT)	GUIDELINE	0.612	0.769	0.865	0.921	0.956	0.841	0.892	0.898	0.915	0.918	0.916	0.715	0.852	6

NOTE: PH-LIMITS 6.50 - 8.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 88% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: Washington Mills Ltd.
& PLANT LOCATION: Niagara Falls

IMISNO.: 0001950005

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland River
INDIRECT: 11 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: Contains dissolved organic compounds and organic processing compounds

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring using "Gross" Loadings in 1989 and should not be compared to Net Data previously reported. The reported increase in RSP loadings does not imply a decrease in effluent quality.

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final Effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined as not acutely lethal.

04/22/92

000195-00-0(5) WASHINGTON MILLS LTD. NIAGARA FALLS REPORT DATE: 23 JAN 92

CONTROL POINT: 0100, FINAL DISCHARGE 1990 MISA DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2254	2057	2180	1903	1914	2223	2263	2070	2217	1616	1513	1624	1986	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	CALC	61.1	48.7	48.7	56.3	55.2	46.5	58.4	47.3	30.3	16.5	13.4	21	42	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	14.7	22.7	16.2	3.82	7.45	9.3	5.48	5.4	9.95	7.42	11.5	13.5	10.6	
KG /DAY (SOLEXT)	GUIDELINE	33.8	30.9	32.7	28.5	28.7	33.3	33.9	31	33.3	24.2	22.7	24.4	29.8	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100 % IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Washington Mills Ltd. (previously reported as Sohio) Niagara Falls

IMIS NO.: 0001660000

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: There are two discharges, both to Welland River; results are composites of all discharges.

EFFLUENT TREATMENT: Process wastewater treatment consists of oil-water separation.

DISCHARGE TYPE: Continuous through an outfall.

COMPANY LIMITS SET BY: MOE GUIDELINES: Objective for the Control of Industrial Waste Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring using "Gross" Loadings in 1989 and should not be compared to Net Data previously reported. The reported increase in RSP loadings does not imply a decrease in effluent quality.

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Queen Lagoon Effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined as not acutely lethal.

The data for eleven trout bioassays submitted to MOE under the MISA monitoring regulation indicated the Old Lagoon Effluent to have been not acutely lethal to test fish. An audit sample tested by the MOE was also determined as not acutely lethal.

04/22/92

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 23 JAN 92

S U M M A R Y FOR EMIS. TYPE: 31 COMBINED EFFLUENT DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.

INCLUDES CONTROL POINTS: 0100 0200

1990 MISA DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	16637	18999	20453	15913	14912	21602	17383	17544	18137	19320	18322.17	18000	18102	
M3 /DAY (FTFLOW)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.45	1.37	2.64	1.6	1.09	1.63	1.2	1.33	1.33	1.79	1.26	1.3	1.42	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	76	65.5	56.2	103	90.4	91.7	33.8	86.4	93.2	122	66.9	137	85.1	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	20.8	21.8	20.5	15.7	14.9	24	17.3	22.1	20.8	34.2	16	18.1	21	
KG /DAY (SOLEXT)	GUIDELINE	250	285	307	239	224	324	261	263	272	290	275	270	272	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

PREVIOUSLY REPORTED CONTROL POINTS 0300 0400 REPRESENTED GROSS IMIS DATA FOR CONTROL POINTS 0100 0200 (NET IMIS DATA).

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0100, QUEEN LAGOON DISCHARGE 1990 MISA DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5609	6695	7739	7041	6814	8823	9080	9660	9761	9975	8922	8123	8187	
M3 /DAY (FTFLOW)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.309	0.486	0.675	0.582	0.496	0.633	0.631	0.763	0.697	0.787	0.609	0.58	0.604	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	32.3	28.9	29.7	48.9	59.1	34.3	18.8	40.7	40.6	65.7	34.2	63.5	41.4	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	7.9	9.59	7.49	7.07	6.62	8.5	8.78	9.3	13.1	10.4	9.54	8.07	8.86	
KG /DAY (SOLEXT)	GUIDELINE	84.1	100	116	106	102	132	136	145	146	150	134	122	123	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 23 JAN 92
CONTROL POINT: 0200, OLD LAGOON DISCHARGE 1990 MISA DATA (GROSS DATA)

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	11028	12304	12714	8872	8098	12779	8303	7884	8376	9345	9400	9877	9915	
M3 /DAY (FTFLOW)	GUIDELINE														
PHOSPHOR UNF.TOT.	CALC	0.141	0.88	1.96	1.02	0.594	1	0.572	0.571	0.634	1	0.649	0.72	0.812	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	CALC	43.7	36.6	26.5	54.4	31.3	57.4	15	45.7	52.6	55.9	32.7	73.1	43.7	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	CALC	12.9	12.2	13	8.6	8.26	15.5	8.47	12.8	7.74	23.8	6.49	10	11.6	
KG /DAY (SOLEXT)	GUIDELINE	165	185	191	133	121	192	125	118	126	140	141	148	149	0

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Wickes Manufacturing Co. Ltd. Bumper Division - Windsor Plant

IMISNO.: 0001060003

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 304

RECEIVING WATERBODY: DIRECT: Little River
INDIRECT: 3.3 km to Detroit River

DESCRIPTION OF ACTIVITY: Steel parts for the automobile industry are plated.

EFFLUENT CHARACTERISTICS: Contains dissolved metals like nickel, zinc and chromium.

EFFLUENT TREATMENT: Chemical precipitation and sedimentation, reduction of water usage.

DISCHARGE TYPE: Continuous five days a week.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Issued May 1988. Effective date May 12, 1989.

MOE OR FEDERAL GUIDELINES: Objective for the Control of Industrial Waste Discharges in Ontario

EXCEEDANCES: Suspended Solids (RSP) (1)

REMEDIAL ACTIONS: None.

COMMENTS: This plant permanently ceased operations in September, 1990.

01/08/91

000106-00-0(3) WICKES MANUFACTURING COMPANY LTD. WINDSOR REPORT DATE: 24 JAN 92

CONTROL POINT: 0100, 1990 DATA

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	765	813	658	649	801	723	753	185	104	76	94	65	474	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.4	9.5	9.4	9.3	9.3	9.2	9.1	8.6	8.75	9.3	9.2	9.1	9.18	
(PH)	GUIDELINE														0
CHROMIUM UNF.TOT.	ACTUAL	0.07	0.15	0.18	0.05	0.02	0.72	0.05	0.03	0.016	0.008	0.03	0.003	0.111	
KG /DAY (CRUT)	GUIDELINE	0.765	0.813	0.658	0.649	0.801	0.723	0.753	0.185	0.104	0.076	0.094	0.065	0.474	0
CHROMIUM +6	ACTUAL	0.03	0.07	0.08	0.04	0.008	0.03	0.024	0.009	0.001	0.003	0.03	0.001	0.027	
KG /DAY (CR6UR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL												0.002	0.002	
KG /DAY (CUUT)	REQUIREMENT												0.065	0.065	0
IRON UNF.TOT.	ACTUAL	0.11	0.11	0.1	0.07	0.21	0.12	0.23	0.041	0.033	0.026	0.06	0.002	0.093	
KG /DAY (FEUT)	REQUIREMENT	13	13.8	11.2	11	13.6	12.3	12.8	3.15	1.77	1.29	1.6	1.11	8.06	0
NICKEL UNF.TOT.	ACTUAL	0.48	0.48	0.45	0.4	0.5	0.4	0.55	0.113	0.077	0.04	0.03	0.01	0.294	
KG /DAY (NIUT)	REQUIREMENT	0.765	0.813	0.658	0.649	0.801	0.723	0.753	0.185	0.104	0.076	0.094	0.065	0.474	0
RESIDUE FILTERED	ACTUAL	2202	1805.1	1416	1369	1924	2007	2609	631	191	227	191	179	1229	
KG /DAY (RSF)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL	8.34	8.62	9.5	7.7	10.4	8.97	12	2.63	1.29	0.71	1.29	0.7	6.01	
KG /DAY (RSP)	REQUIREMENT	11.5	12.2	9.87	9.74	12	10.8	11.3	2.78	1.56	1.14	1.41	0.975	7.11	1
ZINC UNF.TOT.	ACTUAL	0.03	0.04	0.04	0.03			0.03	0.007	0.011	0.02	0.01	0.007	0.023	
KG /DAY (ZNUT)	GUIDELINE														

NOTE: PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 61, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1990.

WASTEWATER DISCHARGE SUMMARY
1990

COMPANY NAME: & PLANT LOCATION: Williams Operating Corporation. (previously reported as Lac Minerals) Marathon

IMISNO.: 0052710209

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY: DIRECT: Frank Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Hydrogen peroxide utilized for cyanide destruction followed by a co-precipitation of heavy metals utilizing copper sulphate and ferric sulphate.

DISCHARGE TYPE: Continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Issued July 1987. Requirements under "Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981".

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: The data for one of two trout bioassays submitted to MOE under the MISA monitoring regulation indicated the final discharge effluent to had been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 64.6 %. The remaining sample was determined non-lethal. An audit sample tested by the MOE was also determined non-lethal.

04/22/92

005271-02-0(9) WILLIAMS OPERATING CORPORATION, WILLIAMS MARATHON REPORT DATE: 7 JAN 92
CONTROL POINT: 0100, 1990 DATA

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL					0.01	0.006	0.005	0.005	0.005	0.005			0.006	
MG/L (ASUT)	GUIDELINE					0.5	0.5	0.5	0.5	0.5	0.5			0.5	0
CYANIDE AVAIL	ACTUAL					0.635	0.187	0.058	0.081	0.095	0.123			0.197	
MG/L (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL					0.52	0.062	0.012	0.017	0.037	0.533			0.197	
MG/L (CUUT)	GUIDELINE					1	1	1	1	1	1			1	0
IRON UNF.TOT.	ACTUAL					0.31	0.268	0.144	0.348	0.298	0.517			0.314	
MG/L (FEUT)	GUIDELINE														
MOLYBDEN UNF.TOT.	ACTUAL					0.58	0.832	0.772	0.625	0.875	1.043			0.788	
MG/L (MOUT)	GUIDELINE														
PH	ACTUAL					7.99	7.62	7.69	7.50	7.68	7.74			7.7	
(PH)	GUIDELINE														0
ANTIMONY UNF.TOT.	ACTUAL					0.3	0.405	0.498	0.482	0.577	0.686			0.491	
MG/L (SBUT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL					0.005	0.018	0.005	0.005	0.006	0.005			0.007	
MG/L (ZNUT)	GUIDELINE					1	1	1	1	1	1			1	0

NOTE: PH-LIMITS 5.50 - 10.60

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1990.

005271-02-0(9) WILLIAMS OPERATING CORPORATION
CONTROL POINT: 0200, FINAL DISCHARGE 1990 MISA DATA MARATHON
REPORT DATE: 10 JAN 92

FLOW/LOADING PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL					10412	14084	13888	13277	13325	11892			12813	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL					7.82	7.66	7.69	7.64	7.71	7.89			7.74	
(PH)	GUIDELINE														
ARSENIC UNF.TOT.	CALC					0.052	0.07	0.069	0.021	0.022	0.018			0.042	
KG /DAY (ASUT)	GUIDELINE														
COPPER UNF.TOT.	CALC					2.08	0.809	0.223	0.264	0.546	0.611			0.756	
KG /DAY (CUUT)	GUIDELINE														
LEAD UNF.TOT.	CALC					0.4	0.362	0.388	0.302	0.361	0.489			0.384	
KG /DAY (PBUT)	GUIDELINE														
ZINC UNF.TOT.	CALC					0.083	0.147	0.132	0.116	0.147	0.089			0.119	
KG /DAY (ZNUT)	GUIDELINE														

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THESE LOADING VALUES WERE CALCULATED USING MISA MONITORING REGULATION SAMPLE RESULTS.
CONCENTRATION BASED LIMITS ARE ESTABLISHED BY CERTIFICATES OF APPROVAL AND ARE PRESENTED ON THE PREVIOUS PAGE.

THIS CONTROL POINT WAS PREVIOUSLY REPORTED IN IMIS AS CONTROL POINT 100.

APPENDIX B
ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
ABITIBI-PRICE INC. (Iroquois Falls Division)	IROQUOIS FALLS	Hudson Bay	A-1
ABITIBI-PRICE INC. (Fort William Division)	THUNDER BAY	Lake Superior	A-2
ABITIBI-PRICE INC. (Provincial Papers Division)	THUNDER BAY	Lake Superior	A-4
ABITIBI-PRICE INC. (Thunder Bay Division)	THUNDER BAY	Lake Superior	A-5
ALGOMA STEEL	SAULT STE. MARIE	St.Mary's River	A-6
AMERICAN BARRICK RESOURCES GROUP	KIRKLAND LAKE	Hudson Bay	A-8
AMERICAN STANDARD - Division of Wabco	CAMBRIDGE	Lake Erie	A-9
ATLAS SPECIALTY STEEL COMPANY LTD.	WELLAND	Lake Ontario	A-10
AULT FOODS LTD.	WINCHESTER	St. Lawrence R.	A-11
BEAVER WOOD FIBRE COMPANY LTD.	THOROLD	Lake Ontario	A-12
B. F. GOODRICH	NIAGARA FALLS	Lake Ontario	A-13
BOISE CASCADE CANADA LTD.	FORT FRANCES	Hudson Bay	A-15
BOISE CASCADE CANADA LTD.	KENORA	Hudson Bay	A-16
BOND GOLD CANADA LTD.	KENORA	Hudson Bay	A-17
BTL SPECIALTY RESINS	BELLEVILLE	Lake Ontario	A-18
CAMECO	BLIND RIVER	Lake Huron	A-19
CAMECO	PORT GRANBY	Lake Ontario	A-20
CAMECO	PORT HOPE	Lake Ontario	A-21
CAMECO	WELCOME	Lake Ontario	A-22
CAMPBELL SOUP COMPANY LTD.	ST. MARYS	Lake Erie	A-23
CANADIANOXY CHEMICALS	FORT ERIE	Lake Ontario	A-24
CANADIAN PACIFIC FOREST PRODUCTS	DRYDEN	Hudson Bay	A-25
CANADIAN PACIFIC FOREST PRODUCTS	THUNDER BAY	Lake Superior	A-26
CASCO	CARDINAL	St. Lawrence R.	A-28
CELANESE CANADA INC.	ERNESTOWN TWP.	Lake Ontario	A-29
CHAMPLAIN INDUSTRIES LTD.	TARA	Lake Huron	A-30
CORNWALL CHEMICALS LTD.	CORNWALL	St. Lawrence R.	A-31
COURTAULDS FIBRES LTD.	CORNWALL	St. Lawrence R.	A-32
CYANAMID CANADA INC. (Niagara Plant)	NIAGARA FALLS	Lake Ontario	A-33
CYANAMID CANADA INC. (Welland Plant)	WELLAND	Lake Ontario	A-34

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
DEAK RESOURCES (formerly Golden Shield Resources)	VIRGINIATOWN	Ottawa River	A-36
DENISON MINES LTD. (Stanrock)	ELLIOT LAKE	Lake Huron	A-37
DENISON MINES LTD. (Stollery Lake)	ELLIOT LAKE	Lake Huron	A-38
DENISON MINES LTD. (Williams Lake)	ELLIOT LAKE	Lake Huron	A-39
DICKENSON MINE LTD. (A.W. White Mine)	BALMERTON	Hudson Bay	A-40
DOFASCO INC.	HAMILTON	Lake Ontario	A-41
DOFASCO INC. (Adams Mine)	KIRKLAND LAKE	Ottawa River	A-43
DOMTAR (Containerboard Division)	TRENTON	Lake Ontario	A-44
DOMTAR (Fine Papers Division)	CORNWALL	St. Lawrence R.	A-45
DOMTAR (Fine Papers Division)	ST.CATHARINES	Lake Ontario	A-46
DOMTAR (Containerboard Division)	RED ROCK	Lake Superior	A-47
DOMTAR (Wood Preserving Division)	TRENTON	Lake Ontario	A-48
DOW CHEMICAL OF CANADA LTD.	SARNIA	Lake Erie	A-50
DUPONT CANADA INC.	CORUNNA	Lake Erie	A-51
DUPONT CANADA INC.	KINGSTON TWP.	Lake Ontario	A-52
DUPONT CANADA INC.	MAITLAND	St. Lawrence R.	A-53
EASTMAQUE GOLD MINES	KIRKLAND LAKE	Ottawa River	A-54
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	Lake Huron	A-55
E. B. EDDY FOREST PRODUCTS LTD.	OTTAWA	Ottawa River	A-56
ESSO CHEMICALS	SARNIA	Lake Erie	A-57
ESSO PETROLEUM CANADA	JARVIS	Lake Erie	A-58
ESSO PETROLEUM CANADA	SARNIA	Lake Erie	A-59
ESSROC CANADA LTD.	PICTON	Lake Ontario	A-60
ETHYL CANADA INC.	CORUNNA	Lake Erie	A-61
EXOLON-ESK COMPANY OF CANADA LTD.	THOROLD	Lake Ontario	A-62
EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC.	NORTH BAY	Lake Huron	A-63
FALCONBRIDGE GOLD CORP. - Bell Creek Mine (formerly Canamax)	PORCUPINE	Hudson Bay	A-64
FALCONBRIDGE LTD. (N.I.R. RD.)	FALCONBRIDGE	Lake Huron	A-65
FALCONBRIDGE LTD. (Kidd Creek Mine - Met. Site)	TIMMINS	Hudson Bay	A-66

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
FALCONBRIDGE LTD. (Kidd Creek Mine - Mine Site)	TIMMINS	Hudson Bay	A-67
FALCONBRIDGE LTD. (Lockerby Mine)	ONAPING	Lake Huron	A-68
FALCONBRIDGE LTD. (Moose Lake Treatment Plant)	ONAPING FALLS	Lake Huron	A-69
FALCONBRIDGE LTD. (Onaping Mine)	ONAPING FALLS	Lake Huron	A-70
FIBERGLAS CANADA LTD.	SARNIA	Lake Erie	A-71
FLEET MFG. COMPANY LTD.	FORT ERIE	Lake Ontario	A-72
FORD MOTOR COMPANY	NIAGARA FALLS	Lake Ontario	A-73
FORD MOTOR COMPANY	ST. THOMAS	Lake Erie	A-74
FORD MOTOR COMPANY	WINDSOR	Lake Erie	A-75
GAY LEA FOODS COOPERATIVE LTD.	TEESWATER	Lake Huron	A-76
G. E. PLASTICS LTD.,	COBOURG	Lake Ontario	A-77
GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	Lake Erie	A-78
GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	Lake Ontario	A-79
GLEN AYR KITTEN MILLS	LANARK	Ottawa River	A-80
HALEY INDUSTRIES	HALEY	Ottawa River	A-81
HEMLO GOLD MINES INC.	MARATHON	Lake Superior	A-82
HIGHLINE PRODUCE LTD. (formerly Campbell's Mushroom Farm)	WELLINGTON	Lake Ontario	A-83
I.C.I. CANADA INC. Conpak (formerly Stanchem)	CORNWALL	St. Lawrence	A-84
I.C.I. CANADA INC.	COURTRIGHT	Lake Erie	A-85
I.C.I. FOREST PRODUCTS INC. (formerly ICI Canada Inc.)	CORNWALL	St. Lawrence R.	A-86
INCO LTD. (Copper Cliff Nickel Refinery)	COPPER CLIFF	Lake Huron	A-87
INCO LTD. (Copper Cliff Treatment Plant)	COPPER CLIFF	Lake Huron	A-88
INCO LTD. (Crean Hill Mine)	COPPER CLIFF	Lake Huron	A-89
INCO LTD. (Garson Mine)	COPPER CLIFF	Lake Huron	A-90
INCO LTD. (Levack Tailings Area)	COPPER CLIFF	Lake Huron	A-91
INCO LTD. (Nolin Creek Treatment Plant)	COPPER CLIFF	Lake Huron	A-92
INCO LTD. (Nickel Refinery)	PORT COLBORNE	Lake Erie	A-93
INCO LTD. (Shebandowan Property)	SHEBANDOWAN	Lake Erie	A-94

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
INTERNATIONAL MINERALS AND CHEMICAL CORP.	DUNNVILLE	Lake Erie	A-95
JAMES RIVER MARATHON LTD.	MARATHON	Lake Superior	A-96
J. M. SCHNEIDER INC.	AYR	Lake Erie	A-97
KIMBERLY-CLARK OF CANADA LTD.	HUNTSVILLE	Lake Huron	A-98
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	Lake Ontario	A-99
KIMBERLY-CLARK OF CANADA LTD.	TERRACE BAY	Lake Superior	A-100
KRAFT FOODS LTD.	INGLESIDE	St. Lawrence R.	A-101
LAC D'AMIANTE DU QUEBEC LTEE. (Aquarius Mine)	PORCUPINE	Hudson Bay	A-102
LAC MINERALS (Macassa Division)	KIRKLAND LAKE	Ottawa River	A-103
LAFARGE CANADA LTD.	BATH	Lake Ontario	A-104
LUZENAC INC.	FOLEYET	Lake Ontario	A-105
MACMILLAN BLOEDEL LTD.	STURGEON FALLS	Lake Huron	A-106
MALETTE KRAFT PULP AND PAPER LTD.	SMOOTH ROCKFALLS	Hudson Bay	A-107
MATTABI MINES LTD.	KENORA	Hudson Bay	A-108
MCBEAN MINES LTD.	DOBIE	Ottawa River	A-109
MINNOVA (Winston Lake Project)	SCHREIBER	Lake Superior	A-110
MITSUBISHI ELECTRONICS INC.	MIDLAND	Lake Huron	A-111
NABISCO BRANDS INC. (formerly Canadian Canners)	ST. DAVIDS	Lake Ontario	A-112
NESTLE ENTERPRISES LTD.	CHESTERVILLE	Ottawa River	A-113
NITROCHEM	MAITLAND	St. Lawrence R.	A-114
NORANDA FOREST INC.	THOROLD	Lake Ontario	A-115
NORANDA INC. (Lyon Lake Division)	THUNDER BAY	Lake Superior	A-116
NORANDA MINERALS INC. (Geco Division)	MANITOUWADGE	Lake Superior	A-117
NORTHERN WOOD PRESERVERS	THUNDER BAY	Lake Superior	A-118
NORTON COMPANY	NIAGARA FALLS	Lake Ontario	A-119
NOVACOR CHEMICALS CANADA LTD.	MOORETOWN	Lake Erie	A-120
NOVACOR CHEMICALS CANADA LTD. (Formerly Nova Petrochemicals)	CORUNNA	Lake Erie	A-121
OGILVIE MILLS LTD.	THUNDER BAY	Lake Superior	A-122
OMSTEAD FOODS LTD.	WHEATLEY	Lake Erie	A-123

ALPHABETICAL LIST OF SOURCES

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ONTARIO HYDRO (Atikokan TGS)	ATIKOKAN	Lake Superior	A-124
ONTARIO HYDRO (Bruce NPGS - STP)	TIVERTON	Lake Huron	A-125
ONTARIO HYDRO (Bruce NPGS - Station A)	TIVERTON	Lake Huron	A-126
ONTARIO HYDRO (Bruce NPGS - Station B)	TIVERTON	Lake Huron	A-126
ONTARIO HYDRO (Bruce NPGS - Heavy Water Plant)	TIVERTON	Lake Huron	A-127
ONTARIO HYDRO (Lakeview TGS)	TORONTO	Lake Ontario	A-128
ONTARIO HYDRO (Lambton TGS)	COURTRIGHT	Lake Erie	A-129
ONTARIO HYDRO (Lennox TGS)	S. FREDERICKSBURG	Lake Ontario	A-130
ONTARIO HYDRO (Nanticoke TGS) ASH LAGOON	NANTICOKE	Lake Erie	A-131
ONTARIO HYDRO (Nanticoke TGS)	NANTICOKE	Lake Erie	A-132
ONTARIO HYDRO (Pickering NPGS - Station A)	PICKERING	Lake Ontario	A-133
ONTARIO HYDRO (Pickering NPGS - Station B)	PICKERING	Lake Ontario	A-133
ONTARIO HYDRO (Thunder Bay TGS)	THUNDER BAY	Lake Superior	A-134
ORENCO (Ontario Rendering)	DUNDAS	Lake Ontario	A-135
PETRO CANADA PRODUCTS INC.	MISSISSAUGA	Lake Ontario	A-136
PETRO CANADA PRODUCTS INC.	OAKVILLE	Lake Ontario	A-137
PLACER-DOME INC. (Campbell Red Lake Mine)	BALMERTON	Hudson Bay	A-138
PLACER-DOME INC. (Detour Lake Mine)	TIMMINS	Hudson Bay	A-139
PLACER-DOME INC. (Dome Mine)	SOUTH PORCUPINE	Hudson Bay	A-140
PLACER-DOME INC. (Donna Lake Mine)	KENORA	Hudson Bay	A-141
POLYSAR RUBBER CORP. (formerly Nova Petrochemicals)	SARNIA	Lake Erie	A-142
QUEBEC AND ONTARIO PAPER COMPANY LTD.	THOROLD	Lake Ontario	A-144
REXWOOD PRODUCTS LTD.	NEW LISKEARD	Ottawa River	A-145
RIO ALGOM LTD. (Panel Mill)	ELLIOT LAKE	Lake Huron	A-146
RIO ALGOM LTD. (Quirke Mill)	ELLIOT LAKE	Lake Huron	A-147
RIO ALGOM LTD. (Stanleigh Mill)	ELLIOT LAKE	Lake Huron	A-148
ROHM AND HASS	CORNWALL	St. Lawrence	A-149
ROTHSAY LTD.	ROTHSAY	Lake Erie	A-150
ROYAL OAK MINES INC. (Pamour)	TIMMINS	Hudson Bay	A-151

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
(formerly Giant Yellowknife)			
ROYAL OAK MINES INC. (Schumacher)	TIMMINS	Hudson Bay	A-152
(Form. Giant Yellowknife)			
SHELL CANADA LTD	CORUNNA	Lake Erie	A-153
SIFTO CANADA INC.	GODERICH	Lake Huron	A-154
SONOCO LTD. TRENT VALLEY MILL	GLEN MILLER	Lake Ontario	A-155
(formerly Trent Valley Paperboard Mills)			
SPRUCE FALLS INC.	KAPUSKASING	Hudson Bay	A-156
(formerly Spruce Falls Power & Paper Co.)			
ST. ANDREW GOLDFIELDS LTD.	STOCK TWP.	Hudson Bay	A-157
ST. MARYS PAPER INC.	SAULT STE MARIE	Lake Huron	A-158
STANLEY HARDWARE	NEW HAMBURG	Lake Erie	A-159
STELCO INC. (Hilton Works)	HAMILTON	Lake Ontario	A-160
STELCO INC. (Lake Erie Works)	NANTICOKE	Lake Erie	A-162
STELCO INC. (Page Hersey Works)	WELLAND	Lake Ontario	A-163
STELCO INC. (Welland Tubes Works)	WELLAND	Lake Ontario	A-164
STEPAN CANADA INC.	LONGFORD MILLS	Lake Huron	A-165
STRATHCONA PAPER CO. (Roman corp. Div.).	CAMDEN EAST TWP	Lake Ontario	A-166
SUNCOR INC. - SUNOCO GROUP	SARNIA	Lake Erie	A-167
TECK-CORUNA INC. (David Bell Mine)	MARATHON	Lake Superior	A-168
TEND-R-FRESH - DIVISION OF MAPLE LEAF	DUNDAS	Lake Ontario	A-169
THE ALGOMA STEEL CORP. LTD. (Ore Division)	SAULT STE. MARIE	Lake Huron	A-170
THE CANADIAN SALT COMPANY LTD.	WINDSOR	Lake Erie	A-171
VALEO ENGINE COOLING LTD.	STRATFORD	Hudson Bay	A-172
WASHINGTON MILLS LTD.	NIAGARA FALLS	Lake Ontario	A-173
WASHINGTON MILLS LTD.	NIAGARA FALLS	Lake Ontario	A-174
WICKES MANUFACTURING CO. LTD.	WINDSOR	Lake Erie	A-175
WILLIAMS OPERATING CORP.	MARATHON	Lake Superior	A-176

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AMERICAN BARRICK RESOURCES GROUP	KIRKLAND LAKE	A-8
BOISE CASCADE CANADA LTD.	FORT FRANCES	A-15
BOISE CASCADE CANADA LTD.	KENORA	A-16
BOND GOLD CANADA LTD.	KENORA	A-17
CANADIAN PACIFIC FOREST PRODUCTS	DRYDEN	A-25
DICKENSON MINE LTD.	BALMERTON	A-40
FALCONBRIDGE GOLD CORP. - Bell Creek Mine (formerly Canamax)	PORCUPINE	A-64
FALCONBRIDGE LTD. (Kidd Creek Mine - Met. Site)	TIMMINS	A-66
FALCONBRIDGE LTD. (Kidd Creek Mine - Mine Site)	TIMMINS	A-67
LAC D'AMIANTE DU QUEBEC LTEE.	PORCUPINE	A-102
MALETTE PULP AND PAPER LTD.	SMOOTH ROCK FALLS	A-107
MATTABI MINES LTD.	KENORA	A-108
PLACER-DOME INC. (Campbell Red Lake Mine)	BALMERTON	A-138
PLACER-DOME INC. (Detour Lake Mine)	TIMMINS	A-139
PLACER-DOME INC. (Dome Mine)	SOUTH PORCUPINE	A-140
PLACER-DOME INC. (Dona Lake Mine)	KENORA	A-141
ROYAL OAK MINES INC. - Pamour (formerly Giant Yellowknife)	TIMMINS	A-151
ROYAL OAK MINES INC. - Schumacher (formerly Giant Yellowknife)	TIMMINS	A-152
SPRUCE FALLS INC. (formerly Spruce Falls Power & Paper Co. Ltd.)	KAPUSKASING	A-156
ST. ANDREW GOLDFIELDS LTD.	STOCK TWP.	A-157

LIST OF SOURCES BY MAJOR WATERSHED BASIN

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ABITIBI-PRICE INC. (Fort William Division)	THUNDER BAY	A-2
ABITIBI-PRICE INC. (Provincial Papers Division)	THUNDER BAY	A-4
ABITIBI-PRICE INC. (Thunder Bay Division)	THUNDER BAY	A-5
CANADIAN PACIFIC FOREST PRODUCTS	THUNDER BAY	A-26
DOMTAR (Containerboard Division)	RED ROCK	A-47
HEMLO GOLD MINES INC.	MARATHON	A-82
JAMES RIVER MARATHON LTD.	MARATHON	A-96
KIMBERLY-CLARK OF CANADA LTD.	TERRACE BAY	A-100
MINNOVA (Winston Lake Project)	SCHREIBER	A-110
NORANDA INC. (Lyon Lake Division)	THUNDER BAY	A-116
NORANDA INC. (Geco Division)	MANITOUWADGE	A-117
NORTHERN WOOD PRESERVERS	THUNDER BAY	A-118
OGILVIE MILLS LTD.	THUNDER BAY	A-122
ONTARIO HYDRO (Atikokan TGS)	ATIKOKAN	A-124
ONTARIO HYDRO (Thunder Bay TGS)	THUNDER BAY	A-134
TECK-CORUNA INC.	MARATHON	A-168
WILLIAMS OPERATING CORP.	MARATHON	A-176
LAKE HURON ...(includes St. Marys River)		
ALGOMA STEEL	SAULT STE. MARIE	A-6
CAMECO	BLIND RIVER	A-19
CHAMPLAIN INDUSTRIES LTD.	TARA	A-30
DENISON MINES LTD. (Stanrock)	ELLIOT LAKE	A-37
DENISON MINES LTD. (Stollery Lake)	ELLIOT LAKE	A-38
DENISON MINES LTD. (Williams Lake)	ELLIOT LAKE	A-39
E.B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	A-55
EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC.	NORTH BAY	A-63

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Company	Location	Page
LAKE HURON ...continued		
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FALCONBRIDGE LTD. (Lockerby Mine)	ONAPING	A-68
FALCONBRIDGE LTD. (Moose Lake Treatment Plant)	ONAPING FALLS	A-69
FALCONBRIDGE LTD. (Onaping Mine)	ONAPING FALLS	A-70
GAY LEA FOODS COOPERATIVE LTD.	TEESWATER	A-76
INCO LTD. (Copper Cliff Nickel Refinery)	COPPER CLIFF	A-87
INCO LTD. (Copper Cliff Treatment Plant)	COPPER CLIFF	A-88
INCO LTD. (Crean Hill Mine)	COPPER CLIFF	A-89
INCO LTD. (Garson Mine)	COPPER CLIFF	A-90
INCO LTD. (Levack Tailings Area)	COPPER CLIFF	A-91
INCO LTD. (Nolin Creek Treatment Plant)	COPPER CLIFF	A-92
KIMBERLY-CLARK OF CANADA LTD.	HUNTSVILLE	A-98
MACMILLAN BLOEDEL LTD.	STURGEON FALLS	A-106
MITSUBISHI ELECTRONICS INC.	MIDLAND	A-111
ONTARIO HYDRO (Bruce NPGS - STP)	TIVERTON	A-125
ONTARIO HYDRO (Bruce NPGS - Station A)	TIVERTON	A-126
ONTARIO HYDRO (Bruce NPGS - Station B)	TIVERTON	A-126
ONTARIO HYDRO (Bruce NPGS - Heavy Water Plant)	TIVERTON	A-127
RIO ALGOM LTD. (Panel Mill)	ELLIOT LAKE	A-146
RIO ALGOM LTD. (Quirke Mill)	ELLIOT LAKE	A-147
RIO ALGOM LTD. (Stanleigh Mill)	ELLIOT LAKE	A-148
SIFTO CANADA INC.	GODERICH	A-154
ST. MARYS PAPER INC.	SAULT STE MARIE	A-158
STEPAN CANADA INC.	LONGFORD MILLS	A-165
THE ALGOMA STEEL CORPORATION LTD. (Ore Division)	SAULT STE. MARIE	A-170

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Company	Location	Page
LAKE ERIE ...(includes St. Clair River, Lake St. Clair and Detroit River)		
AMERICAN STANDARD - DIVISION OF WABCO	CAMBRIDGE	A-9
CAMPBELL SOUP COMPANY LTD.	ST. MARYS	A-23
DOW CHEMICAL OF CANADA LTD.	SARNIA	A-50
DUPONT CANADA INC.	CORUNNA	A-51
ESSO CHEMICALS	SARNIA	A-57
ESSO PETROLEUM CANADA	JARVIS	A-58
ESSO PETROLEUM CANADA	SARNIA	A-59
ETHYL CANADA INC.	CORUNNA	A-61
FIBERGLAS CANADA LTD.	SARNIA	A-71
FORD MOTOR COMPANY	ST. THOMAS	A-74
FORD MOTOR COMPANY	WINDSOR	A-75
GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	A-78
I.C.I. CANADA INC.	COURTRIGHT	A-85
INCO LTD. (Nickel Refinery)	PORT COLBORNE	A-93
INCO LTD. (Shebandowan Property)	SHEBANDOWAN	A-94
INTERNATIONAL MINERALS AND CHEMICAL CORP.	DUNNVILLE	A-95
J.M. SCHNEIDER INC.	AYR	A-97
NOVACOR CHEMICALS CANADA LTD.	SARNIA	A-120
NOVACOR CHEMICALS CANADA LTD. (formerly Nova Petrochemicals)	CORUNNA	A-121
OMSTEAD FOODS LTD.	WHEATLEY	A-123
ONTARIO HYDRO (Lambton TGS)	COURTRIGHT	A-129
ONTARIO HYDRO (Nanticoke TGS) ASH LAGOON	NANTICOKE	A-131
ONTARIO HYDRO (Nanticoke TGS)	NANTICOKE	A-132
POLYSAR RUBBER CORP. (formerly Nova Petrochemicals)	SARNIA	A-142
ROTHSAY LTD.	ROTHSAY	A-150
SHELL CANADA LTD.	CORUNNA	A-153
STANLEY HARDWARE	NEW HAMBURG	A-159
STELCO INC. (Lake Erie Works)	NANTICOKE	A-162

Company	Location	Page
LAKE ERIE ...continued		
SUNCOR - SUNOCO GROUP	SARNIA	A-167
THE CANADIAN SALT COMPANY LTD.	WINDSOR	A-171
VALEO ENGINE COOLING LTD.	STRATFORD	A-172
WICKES MANUFACTURING CO. LTD.	WINDSOR	A-175
LAKE ONTARIO ...(includes Niagara River)		
ATLAS SPECIALTY STEEL COMPANY LTD.	WELLAND	A-10
BEAVER WOOD FIBRE COMPANY LTD.	THOROLD	A-12
B.F. GOODRICH	NIAGARA FALLS	A-13
BTL SPECIALTY RESINS	BELLEVILLE	A-18
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CAMECO	PORT HOPE	A-21
CAMECO	WELCOME	A-22
CANADIANOXY CHEMICALS	FORT ERIE	A-24
CELANESE CANADA INC.	ERNESTOWN TWP.	A-29
CYANAMID CANADA INC. (Niagara Plant)	NIAGARA FALLS	A-33
CYANAMID CANADA INC. (Welland Plant)	WELLAND	A-34
DOFASCO INC.	HAMILTON	A-41
DOMTAR (Containerboard Division)	TRENTON	A-44
DOMTAR (Fine Papers Division)	ST.CATHARINES	A-46
DOMTAR (Wood Preserving Division)	TRENTON	A-48
DUPONT CANADA LTD.	KINGSTON TWP.	A-52
ESSROC CANADA LTD.	PICTON	A-60
EXOLON-ESK COMPANY OF CANADA LTD.	THOROLD	A-62
FLEET MANUFACTURING COMPANY LTD.	FORT ERIE	A-72
FORD MOTOR COMPANY	NIAGARA FALLS	A-73
G.E. PLASTICS LTD.	COBOURG	A-77

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HIGHLINE PRODUCE LTD. (formerly Campbell's Mushroom Farm)	WELLINGTON	A-83
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	A-99
LAFARGE CANADA LTD.	BATH	A-104
LUZENAC INC.	FOLEYET	A-105
NABISCO BRANDS (formerly Canadian Canners)	ST. DAVIDS	A-112
NORANDA FOREST INC.	THOROLD	A-115
NORTON COMPANY	NIAGARA FALLS	A-119
ONTARIO HYDRO (Lakeview TGS)	TORONTO	A-128
ONTARIO HYDRO (Lennox TGS)	S. FREDERICKSBURG	A-130
ONTARIO HYDRO (Pickering NPGS - Station A)	PICKERING	A-133
ONTARIO HYDRO (Pickering NPGS - Station B)	PICKERING	A-133
ORENCO (Ontario Rendering)	DUNDAS	A-135
PETRO CANADA PRODUCTS INC. (Mississauga Plant)	MISSISSAUGA	A-136
PETRO CANADA PRODUCTS INC. (Oakville Plant)	OAKVILLE	A-137
QUEBEC AND ONTARIO PAPER COMPANY LTD.	THOROLD	A-144
SONOCO LIMITED TRENT VALLEY MILL (formerly Trent Valley Paperboard Mills)	GLEN MILLER	A-155
STELCO INC. (Hilton Works)	HAMILTON	A-160
STELCO INC. (Page Hersey Works)	WELLAND	A-163
STELCO INC. (Welland Tubes Works)	WELLAND	A-164
STRATHCONA PAPER COMPANY (Roman Corp. Div.)	CAMDEN EAST TWP.	A-166
TEND-R-FRESH - DIVISION OF MAPLE LEAF	DUNDAS	A-169
WASHINGTON MILLS LTD.	NIAGARA FALLS	A-173
WASHINGTON MILLS LTD.	NIAGARA FALLS	A-174

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Company	Location	Page
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AULT FOODS LTD.	WINCHESTER	A-11
CASCO INC.	CARDINAL	A-28
CORNWALL CHEMICALS LTD.	CORNWALL	A-31
COURTAULDS FIBRES	CORNWALL	A-32
DOMTAR (Fine Papers Division)	CORNWALL	A-45
DUPONT CANADA INC.	MAITLAND	A-53
I.C.I. CANADA INC. CONPAK (formerly Stanchem)	CORNWALL	A-84
I.C.I. FOREST PRODUCTS INC. (formerly ICI Canada Inc.)	CORNWALL	A-86
KRAFT FOODS LTD.	INGLESIDE	A-101
NITROCHEM	MAITLAND	A-114
ROHM AND HASS	CORNWALL	A-149
OTTAWA RIVER		
DEAK RESOURCES (formerly Golden Shield Resources)	VIRGINIATOWN	A-36
EASTMAQUE GOLD MINES	KIRKLAND LAKE	A-54
E.B. EDDY FOREST PRODUCTS LTD.	OTTAWA	A-56
GLEN AYR KITTEN MILLS	LANARK	A-80
HALEY INDUSTRIES	HALEY	A-81
LAC MINERALS (Macassa Division)	KIRKLAND LAKE	A-103
MCBEAN MINES LTD.	DOBIE	A-109
NESTLE ENTERPRISES LTD.	CHESTERVILLE	A-113
REXWOOD PRODUCTS LTD.	NEW LISKEARD	A-145

APPENDIX D
SOURCES IN MISA INDUSTRIAL SECTORS

0100 PETROLEUM REFINING

Esso Petroleum Canada, Nanticoke Refinery	Jarvis
Esso Petroleum Canada, Sarnia Refinery	Sarnia
Petro-Canada Inc., Lake Ontario Refinery	Mississauga
Petro-Canada Inc., Lake Ontario Refinery	Oakville
Novacor Chemicals Canada Ltd. (Formerly Nova Petrochemicals)	Corunna
Shell Canada Products Ltd.	Corunna
Suncor Inc., Sunoco Division	Sarnia

0200 ORGANIC CHEMICALS

AKZO Chemicals	Sarnia*
BASF Canada Inc.	Sarnia*
B. F. Goodrich Canada Inc.	Niagara Falls
BTL Specialty Resins, A Division of Bakelite Thermosets Ltd.	Belleville
CanadianOxy Chemicals Ltd.	Fort Erie
Celanese Canada Inc.	Millhaven
Chinook Chemicals	Sombra*
Cornwall Chemicals Limited	Cornwall
Courtaulds Fibres Canada, A Division of Courtaulds Fibres Inc.	Cornwall
Dow Chemical Canada Inc.	Sarnia
Du Pont Canada Inc.	Corunna
Du Pont Canada Inc.	Kingston
Du Pont Canada Inc.	Maitland
Esso Chemical Canada, a Division of Imperial Oil Ltd.	Sarnia
Ethyl Canada Inc.	Corunna
G. E. Plastics Ltd.	Cobourg
Novacor Chemicals Canada Ltd.,	Mooretown
Polysar Rubber Corp. (Formerly Nova Petrochemicals)	Sarnia
Rohm and Haas Canada Inc.	Morrisburg
Stepan Canada	Longford Mills
Uniroyal Chemical Ltd.	Elmira*

0300 PULP AND PAPER

Abitibi-Price Inc., (Ft. William Division)	Thunder Bay
Abitibi-Price Inc., (Iroquois Falls Division)	Iroquois Falls
Abitibi-Price Inc., (Provincial Papers Division)	Thunder Bay
Abitibi-Price Inc., (Thunder Bay Division)	Thunder Bay
Beaver Wood Fibre Company	Thorold
Boise Cascade Ltd.	Fort Frances

* not included in this report but are presented in MISA Sectorial Reports

0300 PULP AND PAPER ...continued

Boise Cascade Ltd.	Kenora
Canadian Pacific Forest Products Ltd.	Dryden
Canadian Pacific Forest Products Ltd.	Thunder Bay
Domtar Inc. (Fine Papers Division)	Cornwall
Domtar Inc. (Fine Papers Division)	St. Catharines
Domtar Inc. (Containerboard Division)	Red Rock
Domtar Inc. (Containerboard Division)	Trenton
E. B. Eddy Forest Products Ltd.	Espanola
E. B. Eddy Forest Products Ltd.	Ottawa
James River Marathon Ltd.	Marathon
Kimberly-Clark of Canada Ltd.	Huntsville
Kimberly-Clark of Canada Ltd.	St. Catharines
Kimberly-Clark of Canada Ltd.	Terrace Bay
MacMillan Bloedel Ltd.	Sturgeon Falls
Malette Inc., Malette Kraft Pulp and Paper Division	Smooth Rock Falls
Noranda Forest Inc.	Thorold
Sonoco Limited Trent Valley Mill (formerly Trent Valley Paperboard Mills)	Glen Miller
Spruce Falls Inc. (formerly Spruce Falls Power and Paper Co.)	Kapuskasing
Strathcona Paper Company (formerly Roman Corp. Ltd)	Camden East Twp.
St. Mary's Paper Inc.	Sault Ste. Marie
Quebec and Ontario Paper Company Inc.	Thorold

0400 METAL MINING AND REFINING

Agnico-Eagle Mines Ltd. (Leroy Project)	Gowganda*
American Barrick Resources Corp.	Harker Twp.
Ateba Mines Limited	Beardmore*
Bond Gold Canada Ltd	Muskeg Lake
Bond Gold Mines Limited, Broulan Reef	Timmins*
Belmoral Mines Ltd.	Timmins*
CAMECO	Blind River
CAMECO	Port Granby
CAMECO	Port Hope
CAMECO	Welcome
Canamax Resources Inc., Kremzar Mine	Finan Twp.,*
Canamax Resources Inc., Marhill	Timmins*
Citadel Gold Mines Inc.	McMurray Twp.*
Deak Resources Corp. (Formerly Golden Shield Res.)	Virginiatown
Denison Mines Ltd., (Stanrock)	Elliot Lake
Denison Mines Ltd., (Stollery Lake)	Elliot Lake

* not included in this report but are presented in MISA Sectorial Reports

0400 METAL MINING AND REFINING ...continued

Denison Mines Ltd., (Williams Lake)	Elliot Lake
Dickenson Mines Ltd., (Arthur W. White Mine)	Township Golden
Dofasco, Adams Mine	Kirkland Lake
Eastmaque Gold Mines	Kirkland Lake
Falconbridge Gold, Bell Creek Mine (formerly Canamax Resources)	Timmins
Falconbridge Ltd., Kidd Creek Mines Ltd., (Metalurgical Site)	Timmins
Falconbridge Ltd., Kidd Creek Mines Ltd., (Mine Site)	Timmins
Falconbridge Ltd., Lockerby Mine	Falconbridge
Falconbridge Ltd., Moose Lake	Falconbridge
Falconbridge Ltd., NIR Road	Falconbridge
Falconbridge Ltd., Onaping Mine	Onaping Falls
Giant Yellowknife Mines Ltd., ERG Res.	Timmins*
Giant Yellowknife Mines Ltd., Ross Mine	Timmins*
Granges Exploration Limited, Mishibishu Lake	Wawa*
Hemlo Gold Mines Ltd., Golden Giant Mine	Hemlo
Inco Limited, (Copper Cliff Creek Nickel Refinery)	Sudbury
Inco Limited, (Copper Cliff Creek Treatment)	Sudbury
Inco Limited, (Crean Hill)	Sudbury
Inco Limited, (Garson Mine)	Sudbury
Inco Limited, (Levack Tailings Area)	Sudbury
Inco Limited, (Nolin Creek)	Sudbury
Inco Limited, (Whistle)	Sudbury*
Inco Metals Limited.	Port Colborne
Inco Metals Limited	Shebandowan
Kidd Creek Mines Ltd., Owl Creek Mine	Timmins*
Lac D'Aminante Du Quebec Ltee.	Timmins
Lac Minerals, (Macassa Div.)	Kirkland Lake
Madeleine Mines Ltd./Boise Minerals Inc.	Jaffray-Melick Twp.*
Mattabi Mines Ltd.	District of Kenora
McBean Mines	Dobie
Minnova Inc. Winston Lake Project	Schreiber
Muscocho Explorations Ltd., Jerome Mine	Osway Twp.*
Muscocho Explorations Ltd., Magnacon Mine	Wawa*
Muscocho Explorations Ltd., Majino Mine	Goundreau*
Noranda Inc. Lyon Lake Division	Thunder Bay District
Noranda Mines Ltd., (GECO Division)	Manitouwadge
Orofino Resources Ltd., Scadding Mine	Scadding Twp.*
Placer-Dome Inc., Campbell Red Lake Mine	Golden Township
Placer Dome Inc., Detour Lake Mines Ltd.	Timmins
Placer-Dome Inc., Dome Mines	South Porcupine
Placer-Dome Inc., Dona Lake MIne	Pickle Lake

* not included in this report but are presented in MISA Sectorial Reports

0400 METAL MINING AND REFINING ...continued

Renabie Gold Mines Ltd.	Renabie*
Rio Algom Ltd., (Lancor/Nordic)	Elliot Lake*
Rio Algom Ltd., (Panel Mill)	Elliot Lake
Rio Algom Ltd., (Pronto)	Elliot Lake*
Rio Algom Ltd., (Quirke Mill)	Elliot Lake
Rio Algom Ltd., (Stanleigh Mill)	Elliot Lake
Royal Oak Mines Inc. -Pamour (Formerly Giant Yellowknife)	Timmins
Royal Oak Mines Inc. -Schumacher (Formerly Giant Yellowknife)	Timmins
Sifto Salt Ltd.	Goderich
St. Andrew GoldFields	Stock Twp.
Teck-Corona Inc.	Marathon
The Algoma Steel Corp. Ltd., (Ore Div.)	Wawa
The Canadian Salt Company Ltd.	Windsor
Williams Operating Corporation, Williams	Marathon

0500 IRON AND STEEL

Algoma Steel Corporation Ltd.	Sault Ste. Marie
Atlas Steel Company Ltd.	Welland
Dofasco	Hamilton
Ivaco	L'Orignal*
Lasco	Whitby*
Stelco Inc.	Hamilton
Stelco Inc., (Lake Erie Works)	Nanticoke

0600 ELECTRIC POWER GENERATION

Ontario Hydro, Aguasabon GS	Aguasabon River*
Ontario Hydro, Arnprior GS	Madawaska River*
Ontario Hydro, Atikokan TGS	Atikokan
Ontario Hydro, Bruce Heavy Water Plant	Tiverton
Ontario Hydro, Bruce Nuclear, Power Development Services	Tiverton
Ontario Hydro, Bruce Nuclear Waste Storage Site	Tiverton*
Ontario Hydro, Bruce Nuclear, NGS-A and NGS-B	Tiverton
Ontario Hydro, Darlington Construction	Bowmanville*
Ontario Hydro, Darlington NGS	Bowmanville*
Ontario Hydro, Decew NF 23 GS	Welland Canal*
Ontario Hydro, J.C. Keith TGS	Windsor*
Ontario Hydro, Lakeview TGS	Toronto
Ontario Hydro, Lambton TGS	Courtright

* not included in this report but are presented in MISA Sectorial Reports

0600 ELECTRIC POWER GENERATION ...continued

Ontario Hydro, Lennox TGS.	Fredericksburg
Ontario Hydro, Nanticoke TGS	Nanticoke
Ontario Hydro, Pickering NGS-A and NGS-B	Pickering
Ontario Hydro, Pine Portage GS	Nipigon River*
Ontario Hydro, R.L. Hearn TGS	Toronto*
Ontario Hydro, Silver Falls GS	Kaministikia River*
Ontario Hydro, Sir Adam Beck2 GS	Queenston*
Ontario Hydro, Thunder Bay TGS	Thunder Bay
AECL Chalk River Nuclear Laboratory	Chalk River*
AECL Douglas Point WMF	Tiverton*
AECL Nuclear Power Demonstration WMF	Rolphton*

0700 INORGANIC CHEMICALS

Albright and Wilson Americas	Dunnville*
Allied Chemicals Canada Inc.	Amherstburg*
Cabot Canada Ltd.	Sarnia*
Columbian Chemicals Canada Ltd.	Hamilton*
Cyanamid Canada Inc., (Niagara Plant)	Niagara Falls
Cyanamid Canada Inc., (Welland Plant)	Niagara Falls
Exolon-ESK Company of Canada Ltd.	Thorold
Explosives Technologies International	North Bay
Fiberglas Canada Inc.	Sarnia
General Chemical Canada Ltd.	Amherstburg
ICI Canada Inc. Conpak (formerly Stanchem)	Cornwall
ICI Canada Inc. (formerly CIL)	Courtright
ICI Forest Products Inc. (formerly ICI Canada Inc.)	Cornwall
IMC Corporation	Dunnville
Nitrochem Inc.	Maitland
Norton Canada Inc.	Niagara Falls
Partek Insulations Ltd.	Sarnia*
Sulco Chemicals Ltd.	Elmira*
Union Carbide Canada Ltd.	Welland*
Washington Mills Limited	Niagara Falls
Washington Mills, (Electro Minerals Corporation)	Niagara Falls
Welland Chemical Ltd.	Sarnia*

* not included in this report but are presented in MISA Sectorial Reports

0800 METAL CASTING

Acustar	Etobicoke*
Canada Alloy Castings Ltd.	Kitchener*
Canada Pipe Company Ltd.	Hamilton*
Ford Motor Co. of Canada Ltd.	Windsor
Franklin Electric of Canada Ltd.	Strathroy*
General Motor of Canada Ltd.	St. Catharines
Haley Industries Ltd.	Haley
Kubota	Orillia*
Richmond Die Casting Co. Ltd.	Cornwall*
Western Foundry Co. Ltd.	Wingham*

0900 INDUSTRIAL MINERALS

Allan G. Cook Ltd.	Waubaushene*
Beachvilime Ltd.	Beachville*
Bertrand and Frere Construction Co.	L'Original*
Brampton Brick	Brampton*
Cal Graphite	Corporation*
Canada Brick.	Cooksville*
Canada Brick.	Gloucester*
Canada Brick.	Burlington*
Canada Brick.	Streetsville*
Canada Talc., Madoc	Mamora*
Cornwall Sand & Gravel	Cornwall*
Cornwall Sand & Gravel	Richier*
Cruickshank Construction	Eglinburg*
CGC Inc.	Hagersville*
Cruikshank Construction Ltd.	Morrisburg*
Domtar Construction Materials	Caledonia*
Essroc Canada Inc.	Picton
Flamboro Quarries Ltd.	Dundas*
Gormley Aggregates Ltd.	Carden Township*
Guelph Dolime Ltd.	Guelph*
Hard Rock Paving Co. Ltd.	Welland*
Kam Aggregates	Kaninistiquia*
Lafarge Canada Inc.	Bath
Lafarge Canada Inc.	Woodstock*
Luzenac Inc.	Penhorwood Twp.
Milton Limestone (Lac Minerals)	Milton*
Nelson Aggregate Co.	Burlington*
Nelson Aggregate Co.	Uhthoff*

* not included in this report but are presented in MISA Sectorial Reports

0900 INDUSTRIAL MINERALS ...continued

Permanent Concrete (Cornwall)	Cornwall*
Reiss Lime Co. of Canada Ltd.	Blind River*
Ridgemount Quarries Ltd.	Ridgemount*
R. W. Tomlinson Ltd.	Nepean*
Steetley Quarry Products Inc.	Thorold*
Stelco Chem. Lime Works	Ingersoll*
St. Lawrence Cement	Mississauga*
St. Lawrence Cement Inc.	Colborne*
St. Marys Cement	Bowmanville*
St. Marys Cement	St. Marys*
Timminco Ltd. (Metals Div.)	Haley Station*
Warren Paving & Materials	Gloucester*
Westroc Industries Ltd.	Drumbo*

METAL, PLASTIC FABRICATING & FINISHING

American Standard Division of Wabco Standard	Cambridge
Fleet Manufacturing Company Ltd.	Fort Erie
Ford Motor Company of Canada Ltd.	St. Thomas
Mitsubishi Electronics Ltd.	Midland
Stanley Hardware Div. of Stanley Canada Inc.	New Hamburg
Stelco Page Hersey Works	Welland
Stelco Welland Tube Works	Welland
Wickes Manufacturing Co. Ltd.	Windsor
Valeo Engine Cooling Ltd.	Stratford

FOOD PROCESSORS

Ault Foods	Winchester
Campbell Soup Company Ltd.	St. Marys
CASCO Ltd.	Cardinal
Champlain Industries Ltd.	Tara
Gay Lea Foods Cooperative Ltd.	Teeswater
Highline Produce Ltd.	Wellington
(Formerly Campbell's Wellington Mushroom Farm)	
J. M. Schneider Inc.	Ayr
Kraft Foods Ltd.	Ingleside
Nabisco Brands (formerly Canadian Canners Ltd.)	St. Davids
Nestle	Chesterville
Ogilvie Mills	Thunder Bay

* not included in this report but are presented in MISA Sectorial Reports

FOOD PROCESSORS ...continued

Omstead Foods Ltd.	Wheatley
Orenco	Dundas
Rothsay Ltd.	Rothsay
Tend-R-Fresh	Dundas/Flamborough

MISCELLANEOUS

Domtar Wood Preserving Ltd.	Trenton
Ford Motor Company of Canada Ltd.	Niagara Falls
Glen Ayr Kitten Mills	Ayr
Northern Wood Preserving Ltd.	Thunder Bay
Rexwood	New Liskard

* not included in this report but are presented in MISA Sectorial Reports

APPENDIX E
POLLUTANTS AND THEIR SIGNIFICANCE

In the Great Lakes context, overall loadings are the important measure of potential impact. The pollutants monitored and controlled by the Ministry of the Environment fall into one of four major groups defined by the International Joint Commission: Physical (settleable and suspended solids, temperature); chemical (persistent toxics, non-persistent toxics and others); microbiological; and radiological. The Ontario Ministry of the Environment document, Rationale For The Establishment of Ontario's Water Quality Objectives, September, 1979, provides additional information on the significance of these pollutants.

E.1 Physical

Under quiescent conditions suspended solids settle to the bottom where they may destroy fish spawning grounds and smother benthic organisms -- the basic food for many fish. Suspended solids may also plug fish gills. Nonsettleable solids in water increase turbidity, which reduces light penetration and thus restricts phytoplankton production. Thermal discharges from electricity generating stations can, if too hot, act as a thermal barrier that prevents cold water fish from entering the receiving waters.

E.2 Chemical

1. Persistent Toxics

Toxic substances are defined (G.L.W.Q.A. Article 1 (v)) as substances that "can cause death, disease, behavioural abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in an organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances.

Persistent toxics are defined (G.L.W.Q.A. Annex 12 (1)) as "a toxic substance with a half life in water greater than eight weeks". Half life means the time required for the concentration of the substance to diminish to one-half its original value in the water body.

Phthalic acid esters, including dibutyl phthalate, diphthalate and other phthalates, are found in the effluent of certain organic chemical manufacturing plants and are toxic to aquatic life.

Polychlorinated Biphenyls (PCBS), are persistent in the environment and tend to accumulate in fish and sediments. PCB concentration limits in fish tissue protect birds and animals that eat the fish. The concentration of metals, including arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel and selenium, is controlled to protect aquatic life or drinking water.

Fluoride levels in surface waters are also limited (to a concentration of 1.2 milligrams per litre) to protect drinking water.

2. Non-Persistent Toxics

Non-persistent toxics have a half life in water of less than eight weeks and include various types of oils and waxes as well as ammonia-nitrogen. Oil and petrochemicals cause a visible sheen and impart an odour in receiving waters. In addition, they taint edible aquatic life and often cause deposits on nearby shores. Hydrocarbons are discharged by petroleum refineries and primary steel plants; animal fats, greases and vegetable oils from food processors; and soaps, greases, vegetable oils and waxes from soap manufacturers.

Ammonia-nitrogen is found in the effluent of primary steel producers, ore concentrating mills, fertilizer plants, petroleum refiners, synthetic organic factories and food processors. Depending on water temperature and pH, ammonia-nitrogen dissociates in varying amounts, forming un-ionized ammonia which is toxic to aquatic life. Hydrogen sulphide at undissociated concentrations above 2.0 micrograms per litre adversely affects aquatic life and also imparts a disagreeable odour to water.

3. Other Substances

The concentration of dissolved oxygen in water is lowered by the oxygen-demanding degradation of biodegradable materials. If too much oxygen is consumed by the biodegradable effluent in the receiving waters (i.e. if the Biochemical Oxygen Demand or BOD is too great), aquatic organisms can be adversely affected.

Often Chemical Oxygen Demand or Total Organic Carbon are used in place of the BOD test.

Although phosphorus is essential to plant growth and microorganism activity, too much causes excess algae, weed and slime growth. Phenolics, a group of organic substances, can adversely affect the taste of water and fish. At certain concentrations, phenolics in steel mill effluent are toxic to aquatic life forms. Phenolic compounds occur naturally in wood, coal and crude oil.

E.3 Microbiological

Water used for body contact recreation activities should be substantially free from bacteria, fungi, or viruses that may produce enteric disorders or eye, ear, nose, throat and skin infections or other diseases and infections. Where any industrial effluent contains simple sugars, these compounds serve as food for bacterial growth. For each situation, the source has been required to segregate and treat separately its sanitary wastes.

E.4 Radiological

Radioactive pollutants, most commonly found in the nuclear fuel industry, are toxic in certain concentrations. The IJC agreement sets a limit of TED 50 (total equivalent dose integrated over 50 years calculated in accordance with IJC methodology) greater than 1 millirem to the whole body from a daily ingestion of 2.2 litres of lake water per day for one year.

E.5 Hazardous Pollutants

Annex 10, G.L.W.Q.A. contains two lists of compounds. One list, Appendix 1 is titled Hazardous Polluting Substances ; the other, Appendix 2 is titled Potential Hazardous Polluting Substances . Ten inorganic chlorides are classified as hazardous and three as potentially hazardous. Cobalt is extremely toxic to fish. Three cobalt compounds are classified as hazardous.

Magnesium, an essential element for plant and animal life, can cause a cathartic action on the gastro-intestinal tract when present in drinking water in concentrations over 125 milligrams per litre. Water containing this concentration may also have a disagreeable taste.

At concentrations above 250 milligrams per litre, sulphates in raw drinking water may cause a similar effect to excessive magnesium. Ten sulphate compounds are classified Hazardous and three, Potentially Hazardous.

APPENDIX F
FEDERAL AND PROVINCIAL GUIDELINES AND REGULATIONS

This appendix is a list of Federal and provincial guidelines and regulations used to set effluent requirements. Where the limit in the guideline or regulation is a concentration number, i.e. milligrams per litre, this limit has been converted into a loading limit (as used in Appendix A, where flows are available). Multiplying the concentration limit by the flow rate times a conversion factor results in a loading requirement or guideline number. The lists shown below are extracts from the respective document identified. For a more detailed description of the guidelines and regulations refer to the particular document listed.

F.1 Control Order or Requirement and Direction
- (discharge limits may be specified as requirements)

F.2 Certificate of Approval
- (discharge limits may be specified as requirements)

F.3 Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial/1966)

Biochemical Oxygen Demand - see also explanatory notes in title document.	15.0 mg/L maximum
Suspended Solids	15.0 mg/L maximum

The concentration of suspended solids (reported as Residue Particulate in Summary pages) in wastewater at the point of discharge to a receiving waters shall not exceed the concentration of suspended solids in the industrial water supply by more than 15.0 parts per million by weight, or as other wise specified by the Ministry.

Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Metals	
- cadmium	0.001 mg/L maximum
- chromium	1.0 mg/L maximum
- copper	1.0 mg/L maximum
- lead	1.0 mg/L maximum
- mercury	0.001 mg/L maximum
- nickel	1.0 mg/L maximum
- phosphorus	1.0 mg/L max., or < 4.54 kg/day
- tin	1.0 mg/L maximum
- zinc	1.0 mg/L maximum

NOTE - Total quantity of metals discharged will also be considered and dilution with clean water streams to achieve the above concentrations is not acceptable.

Phenols	0.02 mg/L maximum
Ammonia (NH3 as N)	10.0 mg/L maximum
pH	range of 5.5 to 9.5
Sulphates, Chlorides, Dissolved solids	Keep as low as possible, through best available, practicable technology.
Temperature	11 degrees Celsius maximum - above receiving water temperature.

F.4 Provincial Liquid Effluent Guidelines for the Petroleum Refining Industry (Provincial)

Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Phenols	0.02 mg/L maximum
Suspended Solids (Residue Particulate)	15.0 mg/L maximum
Ammonia (NH3 as N)	10.0 mg/L maximum
Chemical Oxygen Demand (COD)	200 mg/L maximum *
pH	range of 5.5 to 9.5
Metals	
- chromium	1.0 mg/L maximum
- copper	1.0 mg/L maximum
- lead	1.0 mg/L maximum
- zinc	1.0 mg/L maximum
- nickel	1.0 mg/L maximum

* Interim objective based on capability of current best practicable technology; may be revised as alternative technology becomes available and where indicated by demonstrated adverse effects on receiving water quality.

F.5 Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

Biochemical Oxygen Demand	15.0 mg/L maximum
Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Metals (excluding calcium, magnesium, potassium and sodium)	1.0 mg/L maximum
Cumulative concentration of copper, lead, zinc and nickel	1.0 mg/L maximum
Cadmium, mercury	Background concentration or less
pH	range of 5.5 to 10.6
Ammonia (NH3 as N)	10.0 mg/L maximum
Phosphorus	1.0 mg/L max., or < 4.54 kg/day
Arsenic	0.5 mg/L maximum
Cyanide	2.0 mg/L maximum
Phenols	0.02 mg/L maximum
Sulphates, dissolved solids	Keep as low as possible using best practicable technology

F.6 Pulp and Paper Effluent Regulations, Ottawa 1972 (Federal)

Limits shown on the Wastewater Discharge Summary sheets and accompanying tables are from Control Orders, Certificates of Approval, and/or may be based on Federal Regulations. The limits are generally set on a site-specific basis.

F.7 The Chlor-Alkali Mercury Liquid Effluent Regulations, Ottawa 1977 (Federal)

2.50 grams of mercury per tonne of a plant's reference production rate (normally the arithmetic mean of actual daily production of chlorine during the previous month, excluding days when there was no production).

F.8 Atomic Energy Canada Limited licence limits. (Federal)

AECL limits are set on a site-specific basis for specific parameters.

F.9 Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa 1977 (Federal)

Authorized Levels of Substances

Substance	Column I Maximum Authorized Monthly Arithmetic Mean Concentration	Column II Maximum Authorized Concentration in a Composite Sample	Column III Maximum Authorized Concentration in a Grab Sample
Arsenic	0.5 mg/L	0.75 mg/L	1.0 mg/L
Copper	0.3 mg/L	0.45 mg/L	0.6 mg/L
Lead	0.2 mg/L	0.3 mg/L	0.4 mg/L
Nickel	0.5 mg/L	0.75 mg/L	1.0 mg/L
Zinc	0.5 mg/L	0.75 mg/L	1.0 mg/L
Total Suspended Matter	25.0 mg/L	37.5 mg/L	50.0 mg/L
Radium - 226	0.5 pCi/L	20.0 pCi/L	30.0 pCi/L
pH	6.0 minimum	5.5 minimum	5.0 minimum

Note: The concentrations are given as total values with the exception of radium - 226 which is a dissolved value after filtration of the sample through a 3 micron filter.

The acceptable levels of substances in the Metal Mining Liquid Effluent Guidelines have the same numerical values as the authorized levels of deleterious substances prescribed in the Metal Mining Liquid Effluent Regulations.

F.10 Interim Pulp and Paper Effluent Guidelines, Ontario 1970

Concentration limits:

50 milligrams per litre for Total Suspended Solids
50 milligrams per litre for Biochemical Oxygen Demand

are acceptable on an interim basis for effluents from pulp and paper mills. Where a mill reduces the effluent volume by water conservation and by recycling, these concentrations may be expected.

F.11 Guidelines for the Control of Industrial Phosphorus Discharges In Liquid Effluents - Ontario (October 1976)

The effluent objective for industrial phosphorus discharges is 1 mg/l maximum total phosphorus. Plants with discharges of less than 4.54 kg/day total phosphorus are exempted from these guidelines.

APPENDIX G
ONTARIO MINISTRY OF THE ENVIRONMENT
Addresses and Telephone Numbers

Regional Offices

The Director, Central Region
7 Overlea Blvd., 4th Floor,
Toronto, Ontario
M4H 1A8
(416) 424-3000

The Director, Northeastern Region
199 Larch Street,
Sudbury, Ontario
P5E 5P9
(705) 675-4501

The Director, Northwestern Region
P.O. Box 5000, 435 James Street S.,
Thunder Bay, Ontario
P7C 5G6
(807) 475-1205

The Director, Southeastern Region
P.O. Box 820, 133 Dalton Street,
Kingston, Ontario
K7L 4X6
(613) 549-4000

The Director, Southwestern Region
985 Adelaide Street South,
London, Ontario
N6E 1V3
(519) 661-2200

The Director, West Central Region
119 King Street West, 12th Floor,
Hamilton, Ontario
L8N 3Z9
(416) 521-7640

District Offices

Central Region

Halton-Peel District Office
1226 White Oaks Blvd.,
Oakville, Ontario
L6H 2B9
(416) 844-5747

Peterborough District Office
139 George Street North,
Peterborough, Ontario
K9J 3G6
(705) 743-2972

Barrie District Office
12 Fairview Road,
Barrie, Ontario
L4N 4P3
(705) 726-1730

Muskoka-Haliburton District Office
483 Bethune Drive,
Gravenhurst, Ontario
P0C 1G0
(705) 687-6647

Toronto East District Office
7 Overlea Blvd.,
Toronto, Ontario
M4H 1A8
(416) 467-3013

Toronto West District Office
7 Overlea Blvd.,
Toronto, Ontario
M4H 1A8
(416) 467-3007

APPENDIX G ...continued
ONTARIO MINISTRY OF THE ENVIRONMENT
Addresses and Telephone Numbers

District Offices ...continued

Central Region ...continued

York-Durham District Office
7 Overlea Blvd.,
Toronto, Ontario
M4H 1A8
(416) 467-3009

Northeastern Region

North Bay District Office
Northgate Plaza,
1500 Fisher Street, Suite 109,
North Bay, Ontario
PlB 2H3
(705) 476-1001

Sudbury District Office
199 Larch Street, 11th Floor,
Sudbury, Ontario
P5E 5P9
(705) 675-4501

Parry Sound Sub-Office
74 Church Street,
Parry Sound, Ontario
P2A 1Z1
(705) 746-2139

Sault Ste. Marie District Office
445 Albert Street East,
Sault Ste. Marie, Ontario
P6A 2J9
(705) 949-4640

Timmins District Office
83 Algonquin Blvd. West,
Timmins, Ontario
P4N 2R4
(705) 268-3222

Northwestern Region

Thunder Bay District Office
P.O. Box 5000, 435 James Street S.,
Thunder Bay, Ontario
P7C 5G6
(807) 475-1205

Kenora District Office
808 Robertson Street,
Kenora, Ontario
P9N 1X9
(807) 468-2718

APPENDIX G ...continued
ONTARIO MINISTRY OF THE ENVIRONMENT
Addresses and Telephone Numbers

District Offices ...continued

Southeastern Region

Cornwall District Office
285 Amelia Street,
Cornwall, Ontario
K8H 3P3
(613) 933-7402

Ottawa District Office
2378 Holly Lane, 2nd Floor,
Ottawa, Ontario
K1V 7P1
(613) 521-3450

Pembroke Sub-Office
1000 Mackay Street,
Pembroke, Ontario
K8B 1A3
(613) 732-3643

Kingston District Office
P.O. Box 820, 133 Dalton Avenue,
Kingston, Ontario
K7L 4X6
(613) 549-4000

Belleville Sub-Office
Belleville Mall, 470 Dundas St. E.,
Belleville, Ontario
K8N 1G1
(613) 962-9208

Southwestern Region

Sarnia District Office
265 North Front Street, Suite 109,
Sarnia, Ontario
N7T 7X1
(519) 336-4030

Windsor District Office
250 Windsor Avenue, 6th Floor,
Windsor, Ontario
N9A 6V9
(519) 254-2546

Chatham Sub-Office
c/o Ministry of Agriculture and Food
P.O. Box 726, 435 Grand Ave. W.,
Chatham, Ontario
N7M 5L1
(519) 354-9434

Owen Sound District Office
1180 - 20th Street,
Owen Sound, Ontario
N4K 6H6
(519) 371-2901

London District Office
985 Adelaide Street South,
London, Ontario
N6E 1V3
(519) 661-2200

Clinton Sub-Office
c/o Ministry of Agriculture and Food
P.O. Box 688,
Clinton, Ontario
N0M 1L0

District Offices ...continued

West Central Region

Cambridge District Office
P.O. Box 219, 400 Clyde Road,
Cambridge, Ontario
N1R 5T8
(416) 653-1511

Hamilton District Office
P.O. Box 2112,
119 King Street W., 9th Floor,
Hamilton, Ontario
L8N 3Z9
(416) 521-7650

Welland District Office
637 - 641 Niagara North,
Welland, Ontario
L3C 1L9
(416) 384-9845

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